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Vol. I

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V. S. C.

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1937

No. 72

**CROWN CORK & SEAL COMPANY, INC.,
PETITIONER,**

vs.

FERDINAND GUTMANN CO., INC.

**ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT
OF APPEALS FOR THE SECOND CIRCUIT**

PETITION FOR CERTIORARI FILED MAY 20, 1937.

CERTIORARI GRANTED OCTOBER 11, 1937.

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SUPREME COURT OF THE UNITED STATES

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OF APPEALS FOR THE SECOND CIRCUIT

VOL. I

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XXXX—Advertisement in "Spot Crowns" of plaintiff, dated July, 1933.	1886	1614
YYYY—Record of Interference 66,201.	1887	1615
ZZZZ—McManus patent No. 1,339,066 and references set up in answer: McManus Patent in Suit No. 1,339,066.	695	530

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American Cork & Seal Co., French Patent No. 415,794.	739	571
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Demuth of 1913, British Patent No. 16,075.	1907	1628
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Bartlett, Patent No. 993,288.	1437	1193
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Knox, Patent No. 1,129,578.	1938	1659

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[fol. 1]

**IN UNITED STATES DISTRICT COURT, EASTERN
DISTRICT OF NEW YORK**

In Equity No. 7371

U. S. Letters Patents Nos. 1,339,066; 1,899,782; 1,899,783;
Reissue 19,117; 1,956,481, and 1,967,195

CROWN CORK & SEAL COMPANY, INC., Plaintiff,

vs.

FERDINAND GUTMANN & Co., Defendant

BILL OF COMPLAINT

Plaintiff for this Bill of Complaint alleges:

I

That Plaintiff, Crown Cork & Seal Company, Inc., is a corporation organized and existing under the laws of the State of New York and is a citizen of the State of New York; that Defendant, Ferdinand Gutmann & Co., is a corporation organized and existing under the laws of the State of New York and is a citizen of the State of New York, and has a regular and established place of business in the City of Brooklyn, County of Kings and State of New York, within the Eastern Judicial District of New York, at which place and in which district, among others, the acts hereinafter complained of as infringements have been done and are being done by the said Defendant.

II

That this is a suit in Equity arising under the patent laws of the United States for infringement of the following United States Letters Patent:

[fol. 2] Patent No. 1,339,066, granted to Charles E. McManus, May 4, 1920, on an application filed November 17, 1915, for "Bottle-Closure."

Patent No. 1,899,782, granted to Plaintiff, Crown Cork & Seal Company, Inc., February 28, 1933, as assignee of Albin H. Warth, on an application filed December 17, 1929, for

"Material for Facing Bottle Caps and Method of Making Same."

Patent No. 1,899,783, granted to Plaintiff, Crown Cork & Seal Co., Inc., February 28, 1933, as assignee of Albin H. Warth on an application filed May 5, 1929, for "Bottle Cap & Method of Manufacturing Same."

Reissue Patent No. 19,117, granted to Plaintiff, Crown Cork & Seal Company, Inc., March 20, 1934, as assignee of Albin H. Warth, for "Process of Producing Closures," being a reissue of Patent No. 1,788,260, granted to Plaintiff, Crown Cork & Seal Co., Inc., January 6, 1931, as assignee of Albin H. Warth, on an application filed January 7, 1927, for "Process of Producing Closures."

Patent No. 1,956,481, granted to Plaintiff, Crown Cork & Seal Co., Inc., April 24, 1934, as assignee of Albin H. Warth, on an application filed June 16, 1933, for "Spot Crown and Liner Material Therefor."

Patent No. 1,967,195, granted to Plaintiff, Crown Cork & Seal Company, Inc., July 17, 1934, as assignee of Albin H. Warth, on an application filed November 7, 1930.

[fol. 3]

III

That with respect to each of the patents in the foregoing list, Plaintiff upon information and belief alleges that prior to the respective application dates, the inventors named therein were the first, original and sole inventors of the inventions disclosed therein, which inventions were not known or used by others in this country before his invention thereof and were not patented or described in any printed publication in this or any foreign country before their invention thereof, or more than two years prior to the respective application dates and not in public use or on sale in this country for more than two years prior to said respective application dates and which had not been abandoned, nor patented, nor caused to be patented by themselves or their legal representatives or assigns in any foreign country upon an application or applications filed more than twelve months prior to said respective application dates; that on said respective application dates they duly filed in the United States Patent Office applications for Letters patent for said inventions; and that on the several dates of issue all of the requirements of the Statutes of the United States then in force having been complied with, the respective patents

Nos. 1,899,782; 1,899,783; 1,956,481; and 1,967,195, were issued to Plaintiff, as assignee of Albin H. Warth, for a term of seventeen years from the respective dates of said patents; that reissue Letters Patent No. 19,117 were issued to Plaintiff as assignee of said Albin H. Warth for the unexpired part of the term of said original Letters Patent No. 1,788,260; and that said Letters Patent No. 1,339,066 [fol. 4] were issued to Charles E. McManus for a term of seventeen years from the date thereof as by said several Letters Patent or duly authenticated copies thereof, ready in Court to be produced, will more fully and at large appear.

IV

That subsequent to the issue of said patent No. 1,339,066, the entire right, title and interest in and to said Letters Patent and invention, together with all rights of recovery for past infringement thereof arising under said Letters Patent was sold, assigned and transferred, unto Plaintiff, Crown Cork & Seal Company, Inc., by an instrument in writing, which assignment has been duly recorded in the Patent Office of the United States; and that prior to the issuance of said patents Nos. 1,899,782; 1,899,783; 1,956,481; Reissue 19,117, and 1,967,195, the said Albin H. Warth, by instrument in writing, sold, assigned and transferred unto Plaintiff, Crown Cork & Seal Company, Inc., his entire right, title and interest in and to said Letters Patent and Reissue Letters Patent and invention, which assignments have been duly recorded in the Patent Office of the United States.

V

That on or about January 23, 1934, the said Albin H. Warth, with the consent of Plaintiff, Crown Cork & Seal Company, Inc., made application in writing to the Commissioner of Patents for the reissue of Letters Patent No. [fol. 5] 1,788,260, dated January 6, 1931, alleging that said Letters Patent No. 1,788,260 were inoperative by reason of a defective and insufficient specification and that the error arose through inadvertence, accident or mistake, and without any fraudulent or deceptive intention, and that Plaintiff, Crown Cork & Seal Company, Inc., surrendered said Letters Patent No. 1,788,260, paid the fees required by law, and duly complied with all the requirements in

such case made and provided, whereupon the Commissioner of Patents caused new Reissue Letters Patent for the same invention as that disclosed in said original Letters Patent No. 1,788,260, in accordance with the corrected specification, to issue to Plaintiff, Crown Cork & Seal Company, Inc., on the twentieth day of March, 1934, and numbered 19,117, whereby there was granted and secured to Plaintiff, Crown Cork & Seal Company, Inc., its successors or assigns for the unexpired part of the term of said original Letters Patent No. 1,788,260, the full and exclusive right to use the invention and improvements as set forth in said reissue Letters Patent No. 19,117. Plaintiff, Crown Cork & Seal Company, Inc., has been, ever since the grant of said reissue Letters Patent, and still is, the sole and exclusive owner of all right, title and interest in and to said reissue Letters Patent No. 19,117.

VI

That said inventions, patented as aforesaid are of great value and utility to Plaintiff, Crown Cork & Seal Company, Inc., and to the public generally; that large numbers of products made in accordance with and embodying the in-[fol. 6] ventions of said Letters Patent and said Reissue Letters Patent have been made and sold by Plaintiff, Crown Cork & Seal Company, Inc.; that the validity of said patents has been generally recognized by the trade and by Plaintiff's competitors, practically all of whom have accepted licenses and paid large sums in royalties for the use of said inventions; that a large and profitable business in the exploitations of said inventions has been built up by Plaintiff, Crown Cork & Seal Company, Inc., and its licensees, so that the said inventions have been and are of great value and profit to Plaintiff, and but for the unlawful acts of Defendants herein complained of, would have been of greater value and profit to Plaintiff.

VII

That, upon information and belief, Defendant, well knowing the premises, and with the intent to injure Plaintiff, has, since the grant of said Letters Patent Nos. 1,339,066; 1,899,782; 1,899,783; Reissue 19,117; 1,956,481 and 1,967,195, and prior to and within six years from the commencement of this suit, within the Eastern Judicial District of

New York, and elsewhere throughout the United States, infringed upon said Letters Patent; and each of them, by practicing the processes and making, using and selling, and inducing others to make, sell and use products embodying the inventions of said several Letters Patent, and threatens to continue so to infringe; wherefore, Plaintiff has been damaged and Defendant has profited.

[fol. 7]

VIII

That Defendant has been notified of its infringement of said Letters Patent, and each of them, but that as Plaintiff is informed and believes, Defendant nevertheless has since such notice continued its infringement.

IX

Wherefore, Plaintiff prays:

1. For a permanent injunction, and a preliminary injunction pending this suit, prohibiting Defendant, Ferdinand Gutmann & Co., Inc., its officers, agents, employees, workmen and confederates from directly or indirectly practicing the processes or making or causing to be made, using or causing to be used, selling or causing to be sold, products embodying the invention of any or all of said Letters Patent Nos. 1,339,066; 1,899,782; 1,899,783; Reissue 19,117; 1,956,481; and 1,967,195, and from infringing upon or violating the rights of Plaintiff in said Letters Patent in any way whatsoever.
2. For costs and an accounting of profits and damages.
3. For such other and further relief as the circumstances of the case may require.

[fol. 8] Crown Cork & Seal Company, Inc., by F. E. Fusting, Vice president. Gifford, Scull & Burgess, 141 Broadway, New York, N. Y., Solicitors for Plaintiff. Cushman, Darby & Cushman, American Security Building, Washington, D. C., Attorneys for Plaintiff. George F. Scull, John J. Darby, of Counsel.

Duly sworn to by F. E. Fusting. Jurat omitted in printing.

[fol. 9] IN UNITED STATES DISTRICT COURT

[Title omitted]

ANSWER AND COUNTERCLAIM

The defendant, Ferdinand Gutmann & Co., for answer and counterclaim to the Bill of Complaint herein, alleges as follows:

First. That for the purposes of this suit, defendant admits the allegations of paragraph I respecting the corporate [fol. 10] character, existence and residence of the defendant, but denies that the defendant has committed or is committing, in the Eastern District of New York, or elsewhere, any of the acts of infringement complained of in the said Bill of Complaint. This defendant, not being informed, except by the Bill of Complaint, as to the citizenship and residence of the plaintiff, leaves the plaintiff to make such proof thereof as it may.

Second. The above named defendant is not informed, except by the Bill of Complaint, as to the matters set forth in paragraph II thereof and again denying the infringement alleged, leaves plaintiff to its proof.

Third. That defendant has no knowledge of the allegations set forth in paragraph IV of the Bill of Complaint alleging title in plaintiff to said patents and leaves plaintiff to its proof thereof.

Fourth. As to each of the six patents set forth in the Bill of Complaint, defendant sets up its defence to each patent separately as follows:

McManus Patent No. 1,339,066, Dated May 4, 1920, on an Application Filed November 17, 1915

For a first and separate defense to said McManus patent, this defendant alleges that no relief can be granted to plaintiff under this patent on the ground of the laches of the plaintiff and its predecessors in title who have allowed [fol. 11] the subject matter covered by said alleged patent to be manufactured at will by a number of manufacturers of Crown Center Spots since the date of said McManus patent and no protest has been made by this plaintiff or any of its predecessors in title against the use of the

alleged invention covered by the McManus patent, and the subject matter of said McManus patent has been treated by the trade generally as public property and no suit or threat of suit has been made by this plaintiff or its predecessors in title against this defendant or any other manufacturer for infringement of said McManus patent.

For a second and separate defense to the McManus patent No. 1,339,066, defendant alleges that the plaintiff is estopped from maintaining this suit on said patent for the reason that on or about the 13th day of October, 1930, plaintiff, by a letter in writing, admitted that defendant had a right to use the subject matter described and claimed in the McManus Patent No. 1,339,066.

For a third and separate defense to the McManus Patent No. 1,339,066, this defendant alleges that plaintiff is estopped from maintaining this suit by reason of the fact that the alleged invention of the McManus patent is disclosed and claimed in the patent to John Alberti No. 1,199,026, dated September 19th, 1916, on an application filed October 3rd, 1913, which Alberti patent expired on September 19th, 1933, and was and is owned by the present plaintiff and neither the present plaintiff nor its predecessors in title has brought suit or threatened suit on said Alberti patent against this [fol. 12] defendant or any other manufacturer of center spot caps.

For a fourth and separate defense to the McManus Patent No. 1,339,066, this defendant denies that Charles E. McManus was, within the meaning of the statute of the United States then in force, the original, first and sole inventor of the alleged new and useful improvements purporting to be set forth in Letters Patent No. 1,339,066; denies that said Charles E. McManus was entitled to a patent therefor under the provisions of said statutes; admits the filing in the United States Patent Office by the said Charles E. McManus of an application for the said Letters Patent, but denies that all of the requirements of the statutes then in force had been duly complied with by the said Charles E. McManus, and further denies that any of the proceedings had with relation to the issuance of said Letters Patent were regular or sufficient to sustain the validity on any ground of the right, exclusive or otherwise, to make, use or vend the alleged invention in the United States or its territories. And this defendant is informed and believes, and therefore avers, that said Letters

Patent No. 1,339,066 is invalid and void because the alleged invention or discovery described and claimed therein, and all material and substantial parts thereof, had been, prior to the alleged invention and discovery thereof by said Charles E. McManus and/or for more than two years prior to the date of application for said Letters Patent, patented, described or published in the following patents and printed publications, to-wit:

[fol.13]

French Patents

#415,794, American Cork & Seal Co., dated July 22, 1910;
463,971, Montaner & Co., dated December 31, 1913.

British Patents

#16,075, Demuth of 1913, published July —, 1914;
26,297, MacCormack of November 10, 1910.

United States Letters Patent

#1,199,026, John Alberti, dated September 19, 1916;
903,865, J. A. Jones, dated November 17, 1908;
1,110,138, J. A. Jones, dated September 8, 1913;
993,288, Leonard Bartlett, dated May 23, 1911;
1,195,392, Geo. M. C. Nielsen, dated August 22, 1906;
1,129,578, George F. Knox, dated February 23, 1915,

and in various other Letters Patent of the United States and of foreign countries and in numerous other printed publications, the numbers, dates and names of inventors of which other Letters Patent of the United States and other foreign countries and the titles, names, publishers, dates and places of publication of which printed publications are unknown to the said defendant at this time, but which, when known, the said defendant prays leave by proper amendment to insert in this answer.

For a fifth and separate defense to the McManus patent, this defendant alleges that said patent is void for the reason that each and every part thereof and the entire subject matter covered by said alleged Letters Patent had been publicly made, used and sold by The International Cork Co., of Brooklyn, N. Y., at Brooklyn, N. Y., and the Ameri-
[fol.14] can Cork & Seal Co., of Philadelphia, Pa., at Philadelphia, Pa., more than two years prior to the date of application for said McManus patent No. 1,339,066.

Warth Patent No: 1,899,782, Dated February 28, 1933, on an Application Filed December 17, 1929

For a first and separate defense to the Warth Patent No. 1,899,782, this defendant denies that it has manufactured or sold a coated strip of material for facing bottle caps as set forth in said Warth patent subsequent to the grant of said patent.

For a second and separate defense to the Warth Patent No. 1,899,782, this defendant alleges that the said alleged invention and every part thereof set forth in said patent had been publicly made, used and sold by the Crown Cork & Seal Company of Baltimore City at Baltimore, Md., this defendant, Ferdinand Gutmann & Co., Brooklyn, N. Y., International Cork Co., of Brooklyn, N. Y., at Brooklyn, N. Y., and the American Cork & Seal Company, of Philadelphia, Pa., at Philadelphia, Pa., and others, for more than two years prior to the filing of the application Serial No. 414,614 resulting in alleged patent No. 1,899,782.

For a third and separate defense to the Warth Patent No. 1,899,782, this defendant denies that Albin H. Warth was, within the meaning of the statute of the United States then in force, the original, first and sole inventor of the alleged new and useful improvements purporting to be set forth in Letters Patent No. 1,899,782; denies that said Albin H. Warth was entitled to a patent therefor under [fol. 15] the provisions of said statutes; admits the filing in the United States Patent Office by the said Albin H. Warth of an application for the said Letters Patent, but denies that all of the requirements of the statutes then in force had been duly complied with by the said Albin H. Warth, and further denies that any of the proceedings had with relation to the issuance of said Letters Patent were regular or sufficient to sustain the validity on any ground of the right, exclusive or otherwise, to make, use or vend the alleged invention in the United States or its territories. And this defendant is informed and believes, and therefore avers, that said Letters Patent No. 1,899,782 is invalid and void because the alleged invention or discovery described and claimed therein, and all material and substantial parts thereof, had been, prior to the alleged invention and discovery by said Albin H. Warth and/or for more than two years prior to the date of application for said Letters

Patent, patented, described or published in the following patents and printed publications to-wit:

United States Letters Patent

- #1,213,926, Charles E. McManus, dated January 30, 1917;
- 1,638,541, Charles E. McManus, dated August 9, 1927;
- 1,657,802, Louvern G. Lange, dated January 31, 1928;
- 1,758,610, Louvern G. Lange, dated May 13, 1930;
- 983,319, Eugene C. Smith, dated February 7, 1911, et al.;
- 1,238,156, Reinhold G. Koch, dated August 28, 1917;
- 1,358,834, Frederick W. Farrell, dated November 16, 1920,

and in various other Letters Patent of the United States and of foreign countries and in numerous other printed [fol. 16] publications, the numbers, dates and names of inventors of which other Letters Patent of the United States and other foreign countries and the titles, names, publishers, dates and places of publication of which printed publications are unknown to the said defendant at this time, but which, when known, the said defendant prays leave by proper amendment to insert in this answer.

Warth Patent No. 1,899,783, Dated February 28, 1933, on an Application Filed May 5th, 1929

For a first and separate defense to U. S. Letters Patent No. 1,899,783, this defendant alleges that the invention purported to be set forth in said patent is merely for the use of the material described and claimed in U. S. Letters Patent No. 1,899,782 issued to Albin H. Warth and, therefore, that said Letters Patent No. 1,899,783 constitutes double patenting and is null and void.

For a second and separate defense to U. S. Letters Patent No. 1,899,783, this defendant alleges that the said alleged invention and every part thereof set forth in said patent had been publicly made, used and sold by the Crown Cork & Seal Company of Baltimore City, Md., at Baltimore, Md., and this defendant, Ferdinand Gutmann & Co., at Brooklyn, N. Y., and others, for more than two years prior

to the filing of application Serial No. 492,546 resulting in alleged Patent No. 1,899,783.

For a third and separate defense to Warth Patent No. 1,899,783, this defendant denies that Albin H. Warth was, within the meaning of the statute of the United States then in force, the original, first and sole inventor of the alleged [fol. 17] new and useful improvements purporting to be set forth in Letters Patent No. 1,899,783; denies that said Albin H. Warth was entitled to a patent therefor under the provisions of said statutes; admits the filing in the United States Patent Office by the said Albin H. Warth of an application for the said Letters Patent, but denies that all of the requirements of the statutes then in force had been duly complied with by the said Albin H. Warth, and further denies that any of the proceedings had with relation to the issuance of said Letters Patent were regular or sufficient to sustain the validity on any ground of the right, exclusive or otherwise, to make, use or vend the alleged invention in the United States or its territories. And this defendant is informed and believes, and therefore avers, that said Letters Patent No. 1,899,783 is invalid and void because the alleged invention or discovery described and claimed therein, and all material and substantial parts thereof, had been, prior to the alleged invention and discovery thereof by said Albin H. Warth and/or for more than two years prior to the date of application for said Letters Patent, patented, described or published in the following patents and printed publications, to-wit:

United States Letters Patent

- #1,339,066, Charles E. McManus, dated May 4, 1920;
- 983,319, Eugene C. Smith, et al., dated February 7, 1911;
- 1,238,156, Reinhold G. Koch, dated August 28, 1917;
- 1,215,737, George E. Stahl, dated February 13, 1917;
- 1,779,884, Louvern G. Lange, dated October 28, 1930;
- 671,191, Edward W. Hanauer, dated April 2, 1901,

[fol. 18] and in various other Letters Patent of the United States and of foreign countries and in numerous other printed publications, the numbers, dates and names of inventors of which other Letters Patent of the United States and other foreign countries and the titles, names, publish-

ers, dates and places of publication of which printed publications are unknown to the said defendant at this time, but which, when known, the said defendant prays leave by proper amendment to insert in this answer.

For a fourth and separate defense to Warth Patent No. 1,899,783, this defendant alleges that the Warth Patent No. 1,899,783 was filed on October 31st, 1930, bearing Serial No. 492,546 and purports to be a division of application Serial No. 360,895, filed May 5th, 1929. That during the prosecution of application Serial No. 360,895 it became involved in an interference with a patent to Louvern G. Lange, No. 1,779,884. That said interference bearing No. 60,931 was terminated without proper judicial determination of priority of invention and without due and proper proceedings in the Patent Office and said Patent No. 1,899,783 is null and void for the reason that Louvern G. Lange is the inventor thereof, if there is any invention in said patent, and not Albin H. Warth, the alleged patentee, and said patent is therefore null and void and confers no rights upon this plaintiff.

For a fifth and separate defense, this defendant denies that it has at any time subsequent to the date of said Letters Patent, made or sold any bottle caps infringing the alleged invention set forth in Patent No. 1,899,783.

[fol. 19] Warth Reissue Patent No. 19,117, Dated March 20, 1934, on an Application Filed January 23, 1934

For a first and separate defense to Reissue patent No. 19,117, this defendant alleges that said Reissue patent is null and void for the reason that the application for reissue was not filed until January 23rd, 1934, which is more than two years subsequent to the date, viz., January 6th, 1931, of the original patent No. 1,788,260; that between the date of the original patent, January 6th, 1931, and the date of the application for reissue of January 23rd, 1934, this defendant had acquired a substantial right and had completed a method of making bottle closures and on July 20th, 1932, filed an application for a patent on said method upon which it had been working for some time prior thereto, and on August 8th, 1933, obtained Letters Patent of the United States bearing No. 1,921,808; that the officers of the plaintiff corporation had inspected and seen the method used by defendant in making its bottle caps prior to the application.

for reissue, and the reissue patent was obtained for the express purpose of attempting to cover the method of manufacture employed by defendant prior to the application for reissue. This defendant, further answering, denies that the Original Letters Patent No. 1,788,260, were inoperative as set forth in paragraph V of the Bill of Complaint and denies that the reissue patent No. 19,117 was properly obtained and alleges that plaintiff acquired no rights under said reissue patent No. 19,117.

For a second and separate defense to Reissue Patent No. 19,117, this defendant alleges that it has not at any time [fol. 20] infringed the Warth Reissue Patent No. 19,117.

As a third and separate defense to Reissue Patent No. 19,117, this defendant alleges that the center spot crown caps which it is now making and has been making for a number of years past are made by a method developed by Mr. Benno Cohn covered by patent No. 1,921,808, dated August 8th, 1933, on an application filed July 20th, 1932.

As a fourth and separate defense to Reissue Patent No. 19,117, this defendant alleges that the said alleged invention and every part thereof set forth in said patent had been publicly made, used and sold by the Crown Cork & Seal Company of Baltimore, Md., at Baltimore, Md., International Cork Company of Brooklyn, N. Y., at Brooklyn, N. Y., New Process Cork Company of Brooklyn, N. Y., at Brooklyn, N. Y., and this defendant, Ferdinand Gutmann & Co. at Brooklyn, N. Y., for more than two years prior to the filing of the application for reissue on January 23rd, 1934.

For a fifth and separate defense to Reissue Patent No. 19,117, this defendant denies that Albin H. Warth was, within the meaning of the statute of the United States then in force, the original, first and sole inventor of the alleged new and useful improvements purporting to be set forth in Reissue Patent No. 19,117; denies that said Albin H. Warth was entitled to a patent therefor under the provisions of said statutes; admits the filing in the United States Patent Office by the said Albin H. Warth of an application for the said Reissue Patent No. 19,117, but denies that all of the requirements of the statutes then in force [fol. 21] had been duly complied with by the said Albin H. Warth and further denies that any of the proceedings had with relation to the issuance of said Reissue Patent were regular or sufficient to sustain the validity on any ground

of the right, exclusive or otherwise, to make, use or vend the alleged invention in the United States or its territories. And this defendant is informed and believes, and therefore avers, that said Reissue Patent No. 19,117 is invalid and void because the alleged invention or discovery described and claimed therein, and all material and substantial parts thereof, had been, prior to the alleged invention and discovery thereof by said Albin H. Warth and/or for more than two years prior to the date of application for said Reissue Patent, patented, described or published in the following patents and printed publications, to-wit:

United States Letters Patent

- #1,339,066, Charles E. McManus, dated May 4, 1920;
- 1,213,926, Charles E. McManus, dated January 30, 1917;
- 1,402,780, Charles E. McManus, dated January 10, 1922;
- 1,199,026, John Alberti, dated September 19, 1916;
- 993,288, Leonard Bartlett, dated May 23, 1911,

and in various other Letters Patent of the United States and of foreign countries and in numerous other printed publications, the numbers, dates and names of inventors of which other Letters Patent of the United States and other foreign countries and the titles, names, publishers, dates and places of publication of which printed publications are unknown to the said defendant at this time, but which, when known, the said defendant prays leave by proper amendment to insert in this answer.

[fol. 22] Warth Patent No. 1,956,481, Dated April 24, 1934,
on an Application Filed June 16, 1933

For a first and separate defense to Warth Patent No. 1,956,481, this defendant denies that it is now or at any time in the past has infringed said patent No. 1,956,481.

For a second and separate defense to Warth Patent No. 1,956,481, this defendant alleges that the claims as filed in application Serial No. 676,190 for this patent were of a limited scope; that thereafter and on or about the 8th day of August, 1933, an officer of the plaintiff corporation called at the plant of the defendant corporation and saw the method and materials used by defendant and was furnished with specimens of caps and materials used by defendant and thereafter and on or about the 23rd day of March, 1934, said application was amended by substituting the

claims now in the patent for those in the original application in an attempt to cover the cap and materials used by the defendant in the manufacture of its bottle closure caps. That the subject matter of said patent is not the invention of Albin H. Warth, but was derived from the defendant herein.

For a third and separate defense to Warth Patent No. 1,956,481, this defendant denies that Albin H. Warth was, within the meaning of the statute of the United States then in force, the original, first and sole inventor of the alleged new and useful improvements purporting to be set forth in Letters Patent No. 1,956,481; denies that said Albin H. Warth was entitled to a patent therefor under the provisions of said statutes; admits the filing in the United States Patent Office by the said Albin H. Warth of an application for the said Letters Patent, but denies that all of the requirements of the statutes then in force had been duly complied with by the said Albin H. Warth, and further denies that any of the proceedings had with relation to the issuance of said Letters Patent were regular or sufficient to sustain the validity on any ground of the right, exclusive or otherwise, to make, use or vend the alleged invention in the United States or its territories. And this defendant is informed and believes, and therefore avers, that said Letters Patent No. 1,956,481 is invalid and void because the alleged invention or discovery described and claimed therein, and all material and substantial parts thereof, had been, prior to the alleged invention and discovery thereof by said Albin H. Warth and/or for more than two years prior to the date of application for said Letters Patent, patented, described or published in the following patents and printed publications, to-wit:

United States Letters Patent

- #1,199,026, John Alberti, dated September 19, 1916;
- 1,339,066, Charles E. McManus, dated May 4, 1920;
- 1,710,453, Maurice V. Hitt, dated April 23, 1929;
- 1,325,075, Joseph J. Byers, dated December 16, 1919;
- 1,389,084, Lawson B. Wilson, dated August 30, 1921;
- Reissue 16,803, Edmund M. Flaherty, dated November 29, 1927;
- 1,554,033, Ebener E. Reid, dated September 15, 1925;
- 983,319, Eugene C. Smith et al., dated February 7, 1911,

[fol. 24] and in various other Letters Patent of the United States and of foreign countries and in numerous other printed publications, the numbers, dates and names of inventors of which other Letters Patent of the United States and other foreign countries and the titles, names, publishers, dates and places of publication of which printed publications are unknown to the said defendant at this time, but which, when known, the said defendant prays leave by proper amendment to insert in this answer.

Warth Patent No. 1,967,195, Dated July 17, 1934, on an Application Filed November 7, 1930

For a first and separate defense to Warth Patent No. 1,967,195, this defendant denies that Patent No. 1,967,195 is a division of Patent No. 1,788,260, and this defendant alleges that, if it be held that the subject matter of alleged Patent No. 1,967,195 is disclosed in Patent No. 1,788,260, then Patent No. 1,967,195 is void for the reason that the application for same was not filed until April 4th, 1933, more than two years after the date of issue of Patent No. 1,788,260 which is dated January 6th, 1931. This defendant further denies that the application bearing Serial No. 494,201 is a division of Serial No. 159,743, filed January 17th, 1927, and this defendant denies that Patent No. 1,967,195 is entitled to a filing date of either January 7th, 1927, or November 7th, 1930.

For a second and separate defense to Patent No. 1,967,195, this defendant denies that it has at any time infringed said patent.

[fol. 25] For a third and separate defense to Patent No. 1,967,195, this defendant alleges that the claims of said patent call for a method of manufacturing center spot bottle caps which is substantially the same method as the method shown and claimed in the patent to John A. Johnson, No. 1,852,578, dated April 5th, 1932, which patent is for a "Method and Apparatus for Assembling Linings in Receptacle Closure Caps" on an application filed November 16th, 1929, which patent, on information and belief, is now owned or controlled by plaintiff. That on or about the 28th day of August, 1928, this defendant purchased a machine from John A. Johnson, and shortly thereafter purchased several other machines, made in accordance with the Johnson Patent No. 1,852,578 while said Johnson was still owner of said patent and long prior to the time plain-

tiff acquired any right in said Johnson patent, and this defendant thereby acquired the right to use machines made in accordance with the Johnson Patent and to practice the method covered by said patent and this defendant has since the 28th day of August, 1928, and for more than two years prior to April 4th, 1933 (the filing date of Warth Patent No. 1,967,195), used machines made in accordance with the Johnson Patent and practiced the method set forth in said patent.

For a fourth and separate defense to Warth Patent No. 1,967,195, this defendant alleges, upon information and belief, that the application for said patent was filed for the expressed purpose of getting into interference with claims 28, 29 and 30 of the patent to John A. Johnson, No. 1,852,578 of April 5th, 1932. That thereafter an interference No. [fol. 26] 66,201 was declared between the application for Warth Patent No. 1,967,195 and the Johnson Patent No. 1,852,578, and, thereafter, said interference was settled between the parties thereto and patent No. 1,967,195 was improperly issued to Albin H. Warth without any proper judicial determination by the Patent Office tribunals of the question of priority of invention between the Johnson patent and the Warth application upon which patent No. 1,967,195 issued and patent 1,967,195 is, therefore, null and void because the alleged invention claimed therein, if any, is the invention of John A. Johnson and not the invention of Albin H. Warth and can confer no exclusive rights upon this plaintiff.

As a fifth and separate defense to Warth Patent No. 1,967,195, this defendant alleges that the said alleged invention and every part thereof set forth in said patent had been publicly made, used and sold by American Cork & Seal Co. of Philadelphia, Pa., at Philadelphia, Pa., New Process Cork Co. of Brooklyn, N. Y., at Brooklyn, N. Y., International Cork Co. of Brooklyn, N. Y., at Brooklyn, N. Y., John A. Johnson at Brooklyn, N. Y., this defendant, Ferdinand Gutmann & Co., at Brooklyn, N. Y., and by this plaintiff at Baltimore, Md., for more than two years prior to the filing of the application on April 4th, 1933, for said patent 1,967,195 and prior to any other filing date which may be asserted for said patent.

As a sixth and separate defense to Warth Patent No. 1,967,195, this defendant alleges that all center spot bottle caps it is now making and has been making and selling long prior to the issue of said patent are made in accordance [fol. 27] with the invention of Mr. Benno Cohn covered by Patent No. 1,921,808 granted August 8th, 1933, on an application filed July 20th, 1932.

As a seventh and separate defense to Warth Patent No. 1,967,195, this defendant denies that Albin H. Warth was, within the meaning of the statute of the United States then in force, the original, first and sole inventor of the alleged new and useful improvements purporting to be set forth in Letters Patent No. 1,967,195; denies that said Albin H. Warth was entitled to a patent therefor under the provisions of said statutes; admits the filing in the United States Patent Office by the said Albin H. Warth of an application for the said Letters Patent, but denies that all of the requirements of the statutes then in force had been duly complied with by the said Albin H. Warth, and further denies that any of the proceedings had with relation to the issuance of said Letters Patent were regular or sufficient to sustain the validity on any ground of the right, exclusive or otherwise, to make, use or vend the alleged invention in the United States or its territories. And this defendant is informed and believes, and therefore avers, that said Letters Patent No. 1,967,195 is invalid and void because the alleged invention or discovery described and claimed therein, and all material and substantial parts thereof, had been, prior to the alleged invention and discovery thereof by said Albin H. Warth and/or for more than two years prior to the date of application for said Letters Patent, patented, described or published in the following patents and printed publications, to-wit:

[fol. 28] United States Letters Patent

- #1,199,026, John Alberti, dated September 19, 1916;
- 1,339,066, Charles E. McManus, dated May 4, 1920;
- 1,213,926, Charles E. McManus, dated January 30, 1917;
- 1,402,780, Charles E. McManus, dated January 10, 1922;
- 993,208, Leonard Bartlett, dated May 23, 1911;
- 1,852,576, John A. Johnson, dated April 5, 1932;

1,169,608, Alexander Bogdanffy, dated January 28, 1916;

1,053,565, Alexander Bogdanffy, dated February 18, 1913;

1,053,898, Alexander Bogdanffy, dated February 18, 1913;

468,226, William Painter, dated February 2, 1892,

and in various other Letters Patent of the United States and of foreign countries and in numerous other printed publications, the numbers, dates and names of inventors of which other Letters Patent of the United States and other foreign countries and the titles, names, publishers, dates and places of publication of which printed publications are unknown to the said defendant at this time, but which, when known, the said defendant prays leave by proper amendment to insert in this answer.

Fifth. This defendant, further answering the Bill of Complaint herein, is informed and believes, and therefore avers, that each of the six separate Letters Patent upon which suit is brought and the defenses to which have been separately set forth under each of said patents is invalid and void because the said Charles E. McManus and Albin H. Warth are not the original and first inventors and discovers of the alleged inventions purporting to be patented in and by said Letters Patent, but that the same, and every [fol. 29] material and substantial part thereof, was, prior to the alleged inventions by said McManus and Warth invented, if there is any patentable invention described and claimed therein, by or known to and used by the parties of the foregoing United States and foreign Letters Patent, whose residences are stated in their respective patents, at their said places of residence and elsewhere, and by other persons, firms and corporations whose names and addresses are not at present known to this defendant, but which, when ascertained, it prays leave by proper amendment to insert in this answer.

Sixth. This defendant, further answering the Bill of Complaint herein, says that it is informed and believes, and therefore avers, that each of the six Letters Patent enumerated in the Bill of Complaint as specifically, separately answered in this answer is invalid and void because the alleged invention of each of said patents does not constitute

patentable novelty or invention within the meaning of the patent law, in view of the prior art and in view of what was common knowledge, all prior to the date of the alleged invention of the said Letters Patent to Charles E. McManus and the five Letters Patent to Albin H. Warth.

Seventh. This defendant, further answering, says that it is informed and believes, and therefore avers, that the said Charles E. McManus and Albin H. Warth surreptitiously and unjustly obtained each of the six Letters Patent set forth in the Bill of Complaint and a separate defense to each of which has been set up in this answer, for that which was in fact invented by another or others, if said Letters [fol. 30] Patent describe and claim any patentable invention, to-wit: each of the persons named in the patents set up in this answer as a defense to each of the six patents upon which suit is brought, who were using reasonable diligence in adopting and perfecting the same.

Eighth. Further answering the Bill of Complaint herein, this defendant denies the allegations contained in paragraph VI of the Bill of Complaint as to the great value of the alleged inventions to the plaintiff and as to general public acquiescence contained therein, and alleges that no license agreement or agreements based on said patents has, or ever had been made, other than an agreement made by the plaintiff in the year 1933 with practically all the manufacturers of center spot crowns, other than this defendant, which agreement is a price-fixing agreement and the licenses made in accordance with said agreement were made to avoid price cutting and were not made because of any recognition of the validity of the patents in suit. That this agreement was for one year and expired about the time of the beginning of the present suit; upon information and belief that the said license agreements have been renewed and modified in order to continue the price-fixing arrangement. This defendant has no knowledge as to whether said alleged licensees have paid large or any sums, for royalties for the use of said alleged inventions and leaves plaintiff to its proof thereof.

Ninth. This defendant denies the allegations of paragraph VIII of the Bill of Complaint and leaves plaintiff to its proof thereof.

[fol. 31] Tenth. This defendant further answering the Bill of Complaint denies each and every allegation of the Bill of Complaint excepting those admitted or as to which it has no knowledge or information. It denies that the plaintiff is entitled to the relief demanded, or to any relief and prays that the Bill of Complaint be dismissed with costs and for such general, further and other relief as may seem to this Court to be proper.

For an Affirmative Defense and Counterclaim:

This defendant, further answering and for a separate cause of action against the plaintiff, alleges:

First. That heretofore and prior to the 20th day of July, 1932, Benno Cohn, then a citizen of the United States and a resident of Kings County, City and State of New York, was the first, original and sole inventor or discoverer of a certain new and useful improvement in "Method of Making Closures" not known or used by others in this country before his invention or discovery thereof and not patented or described in any printed publication in this or any foreign country before his invention or discovery thereof, or more than two years prior to his hereinafter mentioned application for Letters Patent of the United States, and not in public use or on sale in this country for more than two years prior to the date of his said application for said Letters Patent in the United States, and which had not [fol. 32] been abandoned nor patented, nor caused to be patented by him or his representatives or assigns in any country foreign to the United States on an application filed more than twelve months prior to the filing of his application for Letters Patent of the United States, as hereinafter mentioned.

Second. That the said Benno Cohn on or about the 20th day of July, 1932, being then, as aforesaid, the first, original and sole inventor or discoverer of the said improvement in "Method of Making Closures," made application in writing to the Commissioner of Patents of the United States for the grant of Letters Patent for said invention, and duly filed on July 20th, 1932, an application for Letters Patent of the United States Serial No. 623,476 disclosing, describing and claiming said invention in accordance with the then existing laws of the United States.- Simultaneously with

the execution of said application, the said Benno Cohn duly executed and delivered to this defendant, Ferdinand Gutmann & Co., a corporation of the State of New York, an assignment of the entire right, title and interest in and to said invention on "Method of Making Closures," which assignment contained a request that the Letters Patent to be granted therefor were to issue to the said Ferdinand Gutmann & Co. That the said assignment was duly recorded in the United States Patent Office on or about July 20th, 1932.

Third. That the said Benno Cohn and the defendant herein, having duly complied in all respects with the conditions and requirements of the United States statutes in such cases made and provided and after due examination [fol. 33] by the Commissioner of Patents as to the novelty and utility of said improvement, there were issued to defendant, Ferdinand Gutmann & Co., a New York Corporation, under date of August 8th, 1933, in due compliance with the statutes in such cases made and provided, Letters Patent of the United States No. 1,921,808 whereby there was granted to Ferdinand Gutmann & Co., its successors and assigns, for the term of seventeen years from the 8th day of August, 1933, the full and exclusive right of making, using and vending the said invention throughout the United States and territories thereof, as by the original of said Letters Patent or a duly certified copy thereof in court to be produced, as will more fully appear. Defendant further states that by virtue of the premises aforesaid, it has become and now is the sole owner of the entire right, title and interest in and to said Letters Patent and of all rights and privileges granted and secured thereby, and is entitled to sue for injunctive relief against infringement thereof, and to recover any profits and/or damages arising out of the infringement of said Letters Patent.

Fourth. Defendant further states that the said invention, as aforesaid, is of great utility and value to this defendant and to the public generally; that large numbers of closures made in accordance with and embodying the invention of said Letters Patent No. 1,921,808 have been made and sold by defendant, Ferdinand Gutmann & Co. in very large and constantly increasing quantities; that the invention covered by said Letters Patent is of great importance and value to defendant. That defendant has expended large sums of

[fol. 34] money for installing equipment for the manufacture of closures made in accordance with the invention of said Letters Patent and has been and now is ready to supply the trade and public with closures made in accordance with the invention of said Letters Patent; that the public has generally acquiesced in the usefulness of said improvement and has generally acknowledged and acquiesced in the rights of defendant with respect to said invention and in the validity of said Letters Patent.

Fifth. That upon information and belief, prior to the commencement of this suit and since the granting of said Letters Patent and prior to and within six years from the commencement of this suit, the plaintiff herein named, well knowing the facts as herein set forth, has infringed said Letters Patent against the will of the defendant and in violation of defendant's rights; that plaintiff has been and is now infringing said Letters Patent by making, using and selling closures made by the method set forth and claimed in U. S. Letters Patent No. 1,921,808, all against defendant's will and without defendant's license and consent and notwithstanding the fact that notice was given to said plaintiff of said Letters Patent and of its infringement; and that said plaintiff is threatening to continue and to increase such acts of infringement.

For a Second Affirmative Defense and Counterclaim:

This defendant, further answering and for a second, separate cause of action against the plaintiff, alleges:

[fol. 35] First. That heretofore and during the years 1933 and 1934, the plaintiff caused to be published and widely circulated, and is continuing to publish and circulate, a statement to the effect that plaintiff had issued licenses to practically all the manufacturers of center spot caps and warning the public against buying Center Spot Crown Caps from manufacturers other than itself or its licensees.

Second. Upon information and belief that the plaintiff and the licensees mentioned in said publications are practically the only manufacturers of Center Spot Caps as set forth in paragraph VI of the Bill of Complaint, other than the defendant herein, and said publication was made for the purpose of injuring defendant's trade with the users of said caps and said statement has damaged and will greatly damage the business of defendant in making and selling its Center

Spot Caps in accordance with its own patent No. 1,921,808. Defendant is informed and believes that the plaintiff, through its advertising and statements by its salesmen and representatives, is circulating statements in an effort to induce the trade to believe that users of said caps can only purchase center spot crowns from plaintiff and its licensees without fear of suit for infringement.

Third. Upon information and belief that the plaintiff has entered into an agreement with all or practically all of the manufacturers of strip material for use in the making of Center Spot Caps, granting them a license under patent No. 1,899,782, dated February 28, 1933, which is one of the patents in suit, said license containing therein the provision that [fol. 36] such licensees shall not furnish such strip material to others than licensees under the Center Spot patents in suit referred to herein and by reason thereof manufacturers of such strip material have refused to furnish such material for use in Center Spot Caps to independent manufacturers and to this defendant.

Wherefore, the defendant prays:

1. That an injunction issue against this plaintiff restraining it from publishing any literature and making any statements to the effect that defendant is infringing its patents until the determination of this suit, or enforcing, or attempting to enforce the license agreement as to the sale of strip material.

2. That the amount of damages sustained by defendant by reason of any statement made by plaintiff as to infringement by defendant be ascertained and that defendant have judgment therefor.

3. For a decree adjudging defendant's aforesaid Letters Patent No. 1,921,808 good and valid and owned by the defendant and to have been infringed by the plaintiff.

4. That the plaintiff, its directors, officers, associates, attorneys, clerks, servants, agents, workmen, employees and confederates and each of them, may be perpetually enjoined and restrained by a writ of injunction issued out of and under the seal of this Honorable Court from directly or indirectly manufacturing closures made by the methods set forth in said Letters Patent and using or selling closures made in accordance with said Letters Patent No. 1,921,808.

[fol. 37] 5. For costs and an accounting of profits and damages.

6. Such other and further relief as the circumstances of the case may require.

Ferdinand Gutmann & Co., by Benno Cohn, Secretary. Hauff & Warland, 41 Park Row, New York, N. Y., Attorneys for Defendant. Wm. E. Warland, of Counsel.

Duly sworn to by Benno Cohn. Jurat omitted in printing.

[fol. 38] IN UNITED STATES DISTRICT COURT

[Title omitted]

REPLY OF PLAINTIFF TO DEFENDANT'S COUNTERCLAIM

This plaintiff, Crown Cork & Seal Company, Inc., replying to the counterclaim set up by the defendant, Ferdinand Gutmann & Co., in conjunction with the answer to the bill of complaint herein, is advised and therefore on information and belief avers as follows:

I. Answering the first affirmative defense and counterclaim, plaintiff denies each and every allegation of Paragraphs First, Second, Third and Fourth, except that plaintiff admits that on July 20, 1932, said Benno Cohn made application in writing to the Commissioner of Patents of the United States for the grant of Letters Patent for an alleged invention in "Method of Making Closures," Serial No. 623,476, and that Letters Patent of the United States No. 1,921,808 was granted on August 8, 1933, to Ferdinand Gutmann & Co. on said application, and except that plaintiff has no knowledge as to the assignment of said application to Ferdinand Gutmann & Co., and as to the making [fol. 39] and selling of large numbers of closures made in accordance with and embodying the invention of said Letters Patent No. 1,921,808 by defendant Ferdinand Gutmann & Co., and as to the expenditure by defendant of large sums of money for installing equipment for the manufacture of closures made in accordance with the alleged invention of said Letters Patent. Plaintiff denies each and

every allegation of Paragraph Fifth of the first affirmative defense and counterclaim of the answer herein.

II. Answering the second affirmative defense and counterclaim of the answer herein: (1) Plaintiff denies each and every allegation of Paragraph First of said counterclaim; (2) plaintiff denies each and every allegation of Paragraph Second of said counterclaim, except that plaintiff admits that it and its licensees are practically the only manufacturers of center spot crown caps, as set forth in Paragraph VI of the bill of complaint, other than the defendant herein; (3) plaintiff neither admits nor denies the allegations of Paragraph Third of said second affirmative defense and counterclaim and avers that the same are impertinent, immaterial and irrelevant and that the same should be stricken from said counterclaim.

Gifford, Scull & Burgess, Solicitors for Plaintiff. Of
Counsel: John J. Darby.

December 10th, 1934.

[fol. 40] IN UNITED STATES DISTRICT COURT

[Title omitted]

PLAINTIFF'S BILL OF PARTICULARS AS TO CLAIMS RELIED ON

At the trial hereof, plaintiff will rely on the following claims:

Reissue patent No. 19,117—claims 1 and 3.

Patent No. 1,899,782—claims 4, 7 and 9.

Patent No. 1,899,783—claims 4 and 5.

Patent No. 1,956,481—claims 5, 6 and 16.

Patent No. 1,967,195—claims 1, 2 and 3.

Patent No. 1,339,066—claims 2, 3, 4 and 8.

Gifford, Scull & Burgess, Solicitors for Plaintiff.

December 28, 1934.

[fol. 41] IN UNITED STATES DISTRICT COURT

[Title omitted]

ANSWER OF DEFENDANT TO PART OF PLAINTIFF'S MOTION FOR
BILL OF PARTICULARS

The defendant states in answer to subdivision 2 of the motion for bill of particulars that in reference to the McManus patent in suit #1,339,066 it will rely upon the two patents to Jones, viz., 903,865 and 1,110,138, as showing the state of the art and that it will rely upon all the other patents, both foreign and United States, set up in its answer to the McManus patent as anticipations.

As to patent to Warth #1,899,783, the defendant states that it will rely on the patent to Hanauer #671,191 as showing the state of the art and will rely on the other patents set up in its answer to the Warth Patent #1,899,783 as anticipations.

As to the other four patents set up in the bill of complaint, the defendant will rely upon all the patents set up in its answer as anticipations.

Dated New York, December 31st, 1934.

Hauff & Warland, Attorneys for Defendant.

Service of a copy of the above admitted this 31st day of December, 1934.

Gifford, Scull & Burgess, Attorneys for Plaintiff.

[fol. 42] IN UNITED STATES DISTRICT COURT

[Title omitted]

ORDER FOR BILL OF PARTICULARS, ETC.—January 11, 1935

Plaintiff's motion for a bill of particulars and/or further and better statement of certain of the alleged defenses set forth in the answer and counterclaim of the defendant filed herein having come on to be heard, now, after hearing counsel and upon due consideration it is hereby

Ordered, that the defendant, within ten days from the date hereof, serve upon plaintiff's solicitors and file a bill

of particulars and/or further and better statement of certain of the alleged defenses set forth in the answer and counterclaim setting forth and specifying, fully and particularly, the following matters.

[fol. 43]

I

Separately with respect to each of the patents here in suit, the name of each person upon whom the defendant will rely at trial of this suit as having effected a prior public use or sale of the inventions of the patents in suit more than two years prior to the filing of the applications therefor as alleged in Paragraph Fourth of the answer; and with respect to each such prior public use or sale:

(a) When and where the alleged prior public use or sale took place.

(b) With whose knowledge the alleged prior use or sale took place.

(c) Whether any of the articles or machines embodying any alleged prior public use or sale are still in existence, and, if so, when and where they can be inspected by plaintiff's counsel.

(d) With respect to any articles or machines which are not in existence and cannot be examined by plaintiff's counsel, furnish plaintiff with detailed drawings or blue prints and detailed description of the devices or apparatus of such alleged prior use or uses, if any.

II

Separately with respect to each of the patents in suit, what patents and publications referred to in Paragraph Sixth of defendant's answer will be offered in evidence at the trial of the cause to illustrate the prior art and what [fol. 44] was common knowledge prior to the date of the alleged inventions of the patents in suit; and of those so offered on which defendant will rely at such trial in support of the contention of anticipation of the patents in suit.

III

Separately with respect to each patent in suit, in addition to what is demanded in Paragraph II above, state what was "common knowledge" prior to the inventions in suit,

which defendant relies upon as establishing the invalidity of the patents in suit as set forth in Paragraph Sixth of the answer.

IV

Separately with respect to each of the patents here in suit, the name of each person upon whom the defendant will rely at trial of this suit as having had the prior knowledge and/or use of the inventions of the patents in suit as alleged in Paragraph Fifth (p. 17) of the answer, and with respect to each such prior inventor:

(a) When, where and with whose knowledge the alleged prior invention was made.

(b) The date upon which each prior structure, device, article, process or method was conceived, disclosed, and first reduced to practice by the alleged prior inventor thereof.

(c) The date or dates upon which sketches, drawings, or description (upon which defendant will rely) were made [fol. 45] by, for, or by the direction of, each such alleged prior inventor, illustrating or describing such alleged prior invention; and as to each such sketch, drawing or description, whether or not it is now in existence; and if in existence, to furnish a copy thereof.

(d) The date and place of each disclosure (upon which defendant will rely) of each such alleged prior invention to others by the alleged inventor, together with the names of the persons to whom each such disclosure was made and whether each such disclosure was oral or in writing; and if in writing, whether or not each such writing is now in existence; and if in existence, to furnish a copy thereof.

(e) The date or dates upon which any structure, device or article (upon which defendant will rely) was constructed embodying or adapted to operate in accordance with such alleged prior invention; and as to each such structure, device or article, whether or not it is now in existence; also where and to what extent it was operated and to what person or persons its construction and operation were known; and a complete description by words and drawing of each such structure, device or article.

(f) If any of the structures, devices or articles of the prior inventions or experiments are in existence, state where they can be inspected by plaintiff's counsel.

(g) If any of the structures, devices or articles of the above referred to are not in existence, or if defendant does [fol. 46] not know where the same can be inspected, then produce full or working drawings of the same.

(h) If defendant has not knowledge as to the present existence or whereabouts of the structures, devices or articles first reduced to practice, then state where plaintiff's counsel can inspect the earliest existing structures, devices or articles constituting such reduction to practice.

(i) Whether the structures, devices, or articles referred to were ever in public use or on sale.

(j) When and where and with whose knowledge any alleged public use or sale took place.

(k) Whether any of the structures, devices or articles referred to were actually used and/or reduced to practice.

(l) When and where, and with whose knowledge, any actual use and/or reduction to practice of such devices took place.

V

With respect to defendant's counterclaim and the allegation in Paragraph Fifth thereof that plaintiff has infringed the patent to Cohn, No. 1,921,808, August 8, 1933:

(a) State the steps in plaintiff's process that defendant will rely upon at trial to establish infringement of said patent by plaintiff.

[fol. 47] (b) State when and how notice of plaintiff's alleged infringement was given plaintiff by defendant.

(c) State how plaintiff is threatening to continue and increase its alleged infringement, and it is further

Provided that in answering items I and IV defendant shall not be required to give the names of its witnesses,

Ordered, that at the same time, the plaintiff serve upon defendant's solicitors and file a statement giving the dates, approximately, of invention and reduction to practice of each patent sued upon, and it is further

Ordered, that if such bill of particulars and/or further and better statement of the matters specified are not filed within ten (10) days from the entry of this order and copies served-upon plaintiff's solicitors within such time so much of defendant's answer as refers to the alleged prior inventions, uses, knowledge, manufacture, etc., be stricken out and that the defendant be debarred from taking any testimony relating thereto, or receiving any benefit therefrom.

Grover M. Moscowitz, United States District Judge.

Approved as to form. Hauff & Warland, Solicitors for Defendant.

[fol. 48] IN UNITED STATES DISTRICT COURT

[Title omitted]

ANSWER OF DEFENDANT TO ORDER FOR BILL OF PARTICULARS

Item I of Order

As to the McManus patent in suit, #1,339,066, in answer to sub-division (a) of item 1 of the order for Bill of Particulars, center spot caps made in accordance with the Neilsen patent #1,195,392, set up in the answer, have been continuously manufactured since about the year 1908 by the United Cork & Seal Company of Millis, Mass., at Millis, Mass., and by others at different times during the period since 1908.

(2) Center spot caps made in accordance with the Bartlett patent #993,288, set up in the answer, were made about the year 1909 by the American Cork & Seal Co., of Philadelphia, Pa., at Philadelphia, Pa., and were manufactured in large quantities. Such caps were subsequently made by the successors to the American Cork & Seal Co., the Standard Cap and Seal Co., of Philadelphia, Pa.

[fol. 49] (3) Center Spot Caps made in accordance with the patent to Alberti #1,199,026 were manufactured and sold by the International Cork Co., of Brooklyn, N. Y., at Brooklyn, N. Y., in the summer of 1913.

(b) The officers and employees of each of said corporations and by the purchasers and users of such center spot

caps, which caps were extensively used about the dates stated and have been continuously used since the dates above mentioned.

(c) The defendant is endeavoring to locate center spot caps made at that time, but by reason of the nature of the use of these caps it is practically impossible to ascertain definitely whether any caps made at the dates above set forth are in existence now. The defendant is informed and believes that certain machines manufactured about the times specified are still in existence, some of them in the possession of the plaintiff. Defendant is informed and believes that some machines made for making the Neilsen cap are now in the possession of the Bond Manufacturing Co., of Wilmington, Delaware, who succeeded to the business of the American Cork & Seal Co.

As to caps under the Alberti patent, there are on record in the Patent Office, specimens and photostats and an affidavit in the file of that patent, showing caps made in accordance with the Alberti Patent #1,199,026.

Defendant has no control over such machines or such center spot caps, enabling plaintiff to inspect same.

[fol. 50] (d) The answer to (c) applies as to this question, except that defendant has no detailed drawings or blue prints or detailed descriptions of the center spot caps or machines other than as contained in the patents set up in the answer.

With respect to Patent in suit to Warth, #1,899,782, in answer to sub-division (a) Item 1 of the Bill of Particulars, strip material has been used by defendant Ferdinand Gutmann & Co., in its plant at Brooklyn, N. Y., since the latter part of 1924 or early part of 1925, in the manufacture of center spot crown caps.

2. In its manufacture of center spot caps as stated in answer to (a) the American Cork & Seal Co., of Philadelphia, Pa., and certain of its successors, used strip material, as disclosed in the patent to Bartlett #993,288 in connection with an adhesive coating applied during the application of the center spot to the gasket, about the year 1909.

3. The International Cork Co., at Brooklyn, N. Y., in the Summer of the year 1913 and prior to July of that year, using a strip of facing material which was coated with the

adhesive during the application of the center spot to the cushion disc.

4. New Process Cork Co., of Brooklyn, N. Y., in the year 1916 and subsequently thereto, produced at Hoboken, N. J., and Brooklyn, N. Y., center spot caps in which the strip material shown in patent #1,213,926 to Charles E. McManus, president of the plaintiff herein, was used in the [fol. 51] production of center spot caps, by means of a machine shown in patent #1,402,780 to said Charles E. McManus, said patents call for the use of strip material having a coating of adhesive applied to one surface thereof, by means of which the center spots were cemented to the cushion disc.

5. The Crown Cork & Seal Co., of Baltimore City, a predecessor of the plaintiff, has used continuously since 1915, in the manufacture of bottle caps, both metal foil and express or kraft paper having one surface varnished, and having bonded to the other surface thereof a coating of gutta percha. These caps were produced at Baltimore, Md., and have been extensively used throughout the United States, and included center spot caps.

As to (b) and (c) the same answer is made as to these letters in answering the question as to McManus patent, except that the defendant has in its possession caps made at least as early as the latter part of 1924 and December, 1926, which are available to the plaintiff at any time.

As to Warth Patent in suit, #1,899,783, the same users and dates of use and reference to patents that are given in connection with #1,899,782 apply to #1,899,783.

Warth Reissue patent #19,117. The same users and dates of use and references to patents that are given in connection with patents #1,899,782 and 1,899,783 apply to Reissue patent #19,117.

Warth patent #1,956,481, defendant used the adhesive and the method of producing center spot caps as disclosed [fol. 52] to the plaintiff on August 8th, 1933, as alleged on page 12 of the answer, as early as May, 1932.

2. Such use was with the knowledge of the officers and employees of the defendant.

3. Defendant has in its possession caps so made at the time stated, which may be inspected by the plaintiff at any

convenient time, although plaintiff has already been accorded an inspection of the machines used in the production of such caps.

In view of 3, no answer is required to (d).

Warth patent in suit, #1,967,195. The method set forth in #1,967,195 was practiced by each of the users set forth in the answer to the bill of particulars as heretofore specified and in addition by purchasers of machines from John A. Johnson at Brooklyn, N. Y., and elsewhere since the Fall of 1927 and by the defendant at Brooklyn, N. Y., as early as the Summer of 1928. The practice of this method by defendant was discontinued in the year 1932.

Item II

Defendant has already served upon plaintiff's attorneys a list of patents upon which it relies, both as showing the state of the art and as anticipation of the patent in suit.

Item III

The "common knowledge" referred to in the answer and in Item III of the order for bill of particulars is the knowledge of facts that are well known to the entire bottle [fol. 53] closure art referred to as being well known in a number of patents in suit. Also the extensive use by both manufacturers and bottlers of the various caps covered by the various patents in suit.

Item IV

In answer to Item IV of the order for bill of particulars, requiring particulars of prior knowledge and/or use, of invention set forth in the patents in suit and invention and date of invention or inventor and dates of conception, disclosure and reduction to practice, of the inventions disclosed in the patents set up in the answer and referred to on page 17 of the answer, Par. 5, defendant states:

As to McManus Patent #1,339,066, as to the two French patents #415,794 and 463,971 and the English patent to DeMuth #16,075 of 1913, defendant has no knowledge of the circumstances of the origin of the center spot caps shown therein, beyond the disclosure of said patents, and will rely upon the filing and publication dates of such patents, as showing general prior public knowledge of the contents of said patent.

As to the United States patents to Nielsen and to Bartlett and to Knox, defendant has no knowledge as to the date of origin of the center spot caps shown in these patents and will rely upon the filing date of each of these patents, as showing prior knowledge of the contents of said patents by the patentees.

As to the patent to John Alberti, No. 1,199,026, defendant is informed and believes that John J. Alberti originated the center spot cap of said patent in the summer of 1913, and he and other officers and employees of the International Cork Company, at Brooklyn, N. Y., had knowledge of such center spot cap at that time. Said International Cork Company was a predecessor of plaintiff, and all data in relation to said center spot cap is therefore in possession of and available to and within the particular knowledge of plaintiff.

Warth patent in suit #1,899,782, defendant states as to the U. S. Patents to

McManus, 1,213,926

McManus, 1,638,541

Lange, 1,657,802

Smith, 983,319

Koch, 1,238,156

defendant has no knowledge of the date of origin of the material shown in these patents and will rely upon the filing date of each of these patents and the issue date thereof as showing prior and public knowledge of the contents of said patent by the patentees and others.

As to Lange patent #1,758,610, defendant is informed and believes the invention was made between November 15th, 1918 and March 1st, 1919, with the knowledge of officers and employees of the Standard Insulation Co. of Rutherford, New Jersey, at that time. The said Lange patent was in interference #60,878, with the application for Warth patent #1,899,782, and plaintiff, therefore, has better knowledge of all the facts surrounding the Lange invention than defendant.

[fol. 55] Warth patent in suit #1,899,783. Defendant states as to the patents to

McManus, #1,339,066,

Smith, #983,319,

Koch, #1,238,156,

Stahl, #1,215,737,

defendant has no knowledge of the date of origin of the center spot caps shown in these patents and will rely upon the filing date and date of issue of these patents as showing prior and public knowledge of the contents of said patent by the patentees and others.

As to the Lange patent #1,799,884, that patent became involved in an interference #60,931, with an application Serial No. 360,895 (subsequently abandoned by plaintiff) of the patentee Warth, of which Application Serial No. 492,546 of the above patent is alleged to be a division, and defendant is informed and believes that the subject matter of the invention of said application originated with Lange between November 15th, 1918 and March 1st, 1919, and was known to Lange and to other officers and employees of the Standard Insulation Company at Rutherford, New Jersey, at that time. The said invention was reduced to practice on January 1st, 1919, and was used subsequent to that date to a considerable extent. In the Patent Office record of this interference, there is evidence offered by this plaintiff, showing that the subject matter of the interference has been in public use and sale continuously by plaintiff and others, since 1915 and 1916. This is particularly within the knowledge of the plaintiff.

[fol. 56] As to Warth re-issue patent in suit #19,117. Defendant states as to U. S. Patents

McManus, #1,339,066,

McManus, #1,213,926,

McManus, #1,402,780,

Bartlett, #993,288,

defendant has no knowledge as to the date of origin of the center spot caps shown in these patents and will rely upon the filing date and the issue date of each of these patents as showing prior public knowledge of the contents of the patents.

The desired information as to Alberti patent #1,199,026 has previously been given in connection with the patent to McManus, #1,399,066.

As to Warth patent in suit #1,956,481, defendant states as follows:

The information as to Alberti has already been given.

As to U. S. Patents,

#1,339,066 to McManus,

#1,710,453 to Hitt,

#1,325,075 to Byers,

#1,389,084 to Wilson,

Re-issue #16,803 to Flaherty,

#1,554,033 to Reid,

#983,319 to Smith,

defendant has no knowledge of the date of origin of the adhesive used in the center spot caps described in said letters patents but will rely upon the filing date and the date of issue of each of these patents as showing prior public knowledge of the contents of the patents.

[fol. 57] Defendant made the center spot caps complained of, using an open market cement manufactured by the DuPont Company, with the knowledge of the officers and employees of defendant as early as May, 1932, and plaintiff's vice president and counsel were shown on the 8th day of August, 1933, the machine and materials used by defendant in the production of its center spot caps. The cement used by defendant is known as DuPont #4,620, Thermo Plastic cement.

Warth Patent in Suit #1,967,195.

As to the patent to Alberti #1,199,026, information has previously been given regarding this patent.

As to patents to

McManus, #1,339,066,

McManus, #1,213,926,

McManus, #1,402,780,

Bartlett, #983,808,

Bogdanffy, #1,169,608,

Bogdanffy, #1,053,565,

Bogdanffy, #1,053,898,

Painter, #468,226,

defendant has no knowledge as to the date of origin of the methods described in these patents and will rely upon the filing date and issue date of each of these patents as showing prior public knowledge of the contents of these patents.

As to Johnson patent #1,852,578, the Warth application for patent #1,967,195 was filed for the express purpose of obtaining an interference with the Johnson patent #1,852,578. This interference was numbered 66,201. Before

[fol. 58] the termination of the interference proceeding an interest in the Johnson patent was acquired by the plaintiff.

Defendant is informed and believes that the invention of the Johnson patent was conceived in the Fall of 1925, the drawings were made of said machine between the Fall of 1925 and the Fall of 1927. That the disclosures of the invention of Johnson were made in the Fall of 1926, and that the machines of the Johnson patent were openly offered on the market as early as the Fall of 1927. Defendant purchased machines from Johnson in the Summer of 1928, and used such machines in its business in making center spot caps. The plaintiff, having acquired some interest in the Johnson patent, the facts as to this patent and the proceedings in the interference are particularly within the knowledge of the plaintiff.

As to the information called for by sub-divisions lettered (e) to (k) on page 4 of the order for bill of particulars, defendant makes the same statement that it made under sub-divisions (b) to (d) in its answers relating to the McManus patent in suit #1,339,066.

As to (1) set forth on page 5 of the order for bill of particulars, defendant refers to the prior part of its answer to the bill of particulars in connection with the McManus patent #1,339,066.

Item V

As to sub-division (a), all stages.

(b) Plaintiff's vice president and plaintiff's counsel were notified of the issuance of this patent and were permitted [fol. 59] to observe the practice of the method at defendant's factory on August 8th, 1933.

(c) Defendant was informed by an officer of the plaintiff that the plaintiff had practiced the invention and had the right to do so at any time and would do so if it desired.

Dated, New York, January 18th, 1935.

Ferdinand Gutmann & Co., by Benno Cohn, Secretary. Hauff & Warland, Attorneys for Defendant.

Duly sworn to by Benno Cohn. Jurat omitted in printing.

[fol. 60] IN UNITED STATES DISTRICT COURT

[Title omitted]

PLAINTIFF'S BILL OF PARTICULARS AS TO DATES OF CONCEPTION,
ETC.

At the trial hereof plaintiff will rely on the following dates of conception and reduction to practice of the several patents in suit:

Patent	Conception	Reduction
1,339,066	Fall of 1913	Fall of 1913
Re.19,117	Fall of 1924	Early in 1927
1,967,195	Fall of 1924	Early in 1927
1,899,782	Early in 1921	Early in 1921
1,899,783	Early in 1925	Early in 1925
1,956,481	Early in 1926	Fall of 1926

• Gifford, Scull & Burgess, Solicitors for Plaintiff.

January 21, 1935.

[fol. 61] IN UNITED STATES DISTRICT COURT

[Title omitted]

MOTION FOR FURTHER PARTICULARS

Now comes plaintiff, by its solicitors Gifford, Scull & Burgess, and moves that an order be entered herein directing defendant to answer sub-paragraphs (c) and (d) of Item 1 of said order dated January 11, 1935, fully and specifically as to each of the prior users set up against patents in suit Nos. 1,899,782, 1,899,783 and 1,967,195 and Re-issue patent 19,117, except that defendant is not required to give any further particulars in relation to patent No. 1,967,195 as to alleged prior uses by purchasers of machines from John A. Johnson.

Plaintiff further moves that such order shall direct defendant to answer specifically and in detail the following

questions as part of its answers to sub-paragraphs (c) and (d) of Item 1 of said order dated January 11, 1935:

I. Referring to Warth patent 1,899,782, in suit and defendant's particulars heretofore given:

1a. As to the alleged prior use by defendant, give a description, including the kind of material in the strip and [fol. 62] the kind of adhesive thereon, if any, and state whether said adhesive was applied to said strip material before or after the center spot was punched therefrom.

1b. As to the alleged prior use by defendant, were center spot crown caps made with the strip described in answer to the foregoing question (1a), sold and, if so, to whom, giving the earliest date of such sale.

2. As to the alleged prior use by the American Cork & Seal Co. of Philadelphia, Pa., and certain of its successors, give a description of the strip, including the kind of material thereof and the adhesive, if any, applied thereto, and state whether the adhesive was applied to the strip material before or after the center spots were punched from said strip material.

3. As to the alleged prior use by International Cork Co., give a description of the strip, including the kind of material thereof and the adhesive, if any, applied thereto, and state whether the adhesive was applied to the strip material before or after the center spots were punched from said strip material.

4. Referring to the answers of defendant to the order for bill of particulars heretofore filed, and particularly to the answer beginning the third line from the bottom of page 3 thereof, to which of the alleged prior uses do the caps referred to in said answer specifically relate, and who made the respective caps referred to in said answer.

[fol. 63] II. As to each of the alleged prior uses by defendant, by American Cork & Seal Co. and certain of its successors, and by International Cork Co. of the inventions of Warth patent 1,899,783, in suit and defendant's particulars heretofore given, state whether any of the alleged caps made by any of said alleged prior users are in existence and, if so, where and when they can be inspected by plaintiff's representatives and, if no such caps are in existence

to defendant's knowledge, give a description of the caps on which defendant will rely as to each said prior use, particularly a description of the center spot in each case, including the kind of material of the center spot and the adhesive, if any, used therewith.

III. As to each of the alleged prior uses by defendant, by American Cork & Seal Co. and certain of its successors and by International Cork Co. of the inventions of Warth Reissue 19,117, in suit and defendant's particulars heretofore given, give a description of the method upon which defendant will rely, including a description of the materials of the center spot and the adhesive, if any, used therewith and state whether the center spot material used in such method was in strip form and, if so, whether the adhesive was applied thereto before the center spot was punched therefrom and the kind of adhesive so applied, and if the method was carried out by a machine, give a drawing of such machine, unless such machine is still in existence and can be examined by plaintiff's representatives and if the latter, state when and where such inspection may be had.

[fol. 64] IV. As to each of the alleged prior uses by defendant, by American Cork & Seal Co. and certain of its successors, and by International Cork Co. of the inventions of Warth patent 1,967,195, in suit and defendant's particulars heretofore given, give a description of the method upon which defendant will rely, including a description of the materials of the center spot and the adhesive, if any, used therewith and state whether the center spot material used in such method was in strip form and, if so, whether the adhesive was applied thereto before the center spot was punched therefrom and the kind of adhesive so applied, and if the method was carried out by a machine, give a drawing of such machine, unless such machine is still in existence and can be examined by plaintiff's representatives, and if the latter, state when and where such inspection may be had.

Gifford, Scull & Burgess, Solicitors for Plaintiff.
John J. Darby, of Counsel.

January 26, 1935.

[fol. 65] IN UNITED STATES DISTRICT COURT

[Title omitted]

DEFENDANT'S VOLUNTARY ANSWERS TO FURTHER PARTICULARS

Warth Patent #1,899,782: In answer to subdivision 1a defendant states that the strip material used by it in its plant at Brooklyn, N. Y., in the latter part of 1924, or early part of 1925, in the manufacture of center spot crown caps, consisted of metal foil strip material. The adhesive used was gutta percha applied to the strip before the center spot was cut out.

Defendant further states that it had made and sold caps for bottles prior to said date (not center spot crowns) containing liners cut from strip material comprising varnished paper and a compressible backing, bonded together by a heat fusible adhesive before the discs were cut out. Both strips were made by others than defendant.

In answer to sub-division 1b, center spot crowns referred to in said question were sold about December, 1924. Defendant declines to state the name of its customer unless ordered to do so by the Court.

In answer to sub-division 2 defendant states that the prior uses by the American Cork & Seal Company of Philadelphia, Pa., and certain of its successors, consisted in using a strip of metal foil having a heat fusible adhesive which was applied to the strip material after the center spots were punched from said material.

In answer to sub-division 3 as to the alleged prior use of International Cork Company, defendant states that the material of the strip was metal foil and the adhesive was albumen applied to the strip material after the center spots were punched from said strip material.

Defendant further states that a strip material consisting of varnished paper having an adhesive of gutta percha bonded to one side thereof, was made and sold by Crown Cork & Seal Co., of Baltimore City, Md., as early as 1915, and continuously thereafter as appears from the proceedings in Interference #60,878, in which the application for Warth patent #1,899,782, was involved before its issue.

In answer to sub-division 4, defendant states that as to caps not made by it, it believes they were made by the Crown Cork & Seal Co., of Baltimore City, Maryland.

Warth Patent #1,899,783: In answer to paragraph II of the motion for further compliance with the order for bill of particulars, defendant states that as to its own prior use, it made bottle closures consisting of a metal shell with a natural cork lining adhered to the metal back by means of an adhesive paper collet; a center spot consisting of metal foil having a gutta percha adhesive between same and the lining co-extensive in area with the center spot, the gutta percha being applied to a strip of metal foil before cutting [fol. 67] the center spot therefrom. Defendant has not found any of such caps, but if it does find such caps, it will gladly allow plaintiff an inspection of same before the trial.

As to the American Cork & Seal Co., defendant has no caps made by that company in its possession and a description of same is found in the patent to Bartlett #993,288.

As to the International Cork Company caps, defendant has no caps made by that company in its possession at the present time. Reference is made to the Albert patent #1,199,026, samples of said caps are on file in the Patent Office with the file wrapper of the Alberti patent.

As to both the Bartlett and the Alberti patents, if defendant can find such caps, it will be glad to allow plaintiff's counsel to inspect same.

Defendant also refers plaintiff's counsel to the interrogatories now on file in this suit and defendant will also rely upon the proceedings had in Interference #60,931, upon which the Warth patent in suit #1,899,783, was issued.

Defendant also will rely upon the caps shown and described in abandoned application by Warth, Serial Number 130,631.

Warth Re-issue #19,117: In answer to paragraph III defendant states that as to its own prior use set up on page 6 of the answer, the center spot caps were made on a modified form of Clark machine, Patent #1,134,031, and the method used was substantially as follows: the cork disc of a previously assembled cap was heated while descending a chute from the hopper to the cap feeding mechanism of the machine. Center spot discs were cut, with a cold [fol. 68] punch, from a strip of metal foil having gutta percha bonded to the lower face thereof and deposited upon the heated cork disc. The cap was then placed under pressure until the gutta percha hardened. The modification of the Clark machine above referred to consisted in changes in the ordinary strip feeding mechanism of that

machine and the disconnection of the cork disc feeding mechanism.

This modified form of the Clark machine is not now in existence and there are no drawings of same.

Later and as early as 1928, defendant purchased and used the machine of the Johnson patent #1,852,578 (as set forth on page 14 of Answer), and followed the method of that patent until 1932. Later defendant abandoned the Johnson method and made caps by the method described in the patent to Benno Cohn.

As to the alleged prior use of the American Cork & Seal Company and its successors, defendant is informed and believes that the center spot caps made by it were made by the method disclosed in the Bartlett patent No. 993,288 and that the strip material was metal foil, having a heat fusible adhesive applied to it after the center spot was punched therefrom.

As to the alleged prior use by International Cork Company, defendant is informed and believes that the center spot crowns made by said Company were made in accordance with the patent to Alberti No. 1,199,026. That the strip material was metal foil and the adhesive used was albumen; that the adhesive was applied to the center spot after it was punched from the strip of material; that the method used by [fol. 69] International Cork Company was that disclosed in the Alberti patent aforesaid and the Alberti, et al. patent #1,401,300.

That the machines referred to in Q. III are not in existence so far as defendant is aware, unless such machines are in the possession of plaintiff, and that there are no drawings of said machines, other than those shown in the Clark and Alberti, et al. patents.

Warth Patent #1,967,195: In answer to paragraph IV of the motion for further bill of particulars, defendant states that as to its own alleged prior use, the strip material was both metal foil and paper, principally metal foil; having gutta percha bonded thereto or fed separately, or coated with DuPont adhesive 4620 before the center spot was cut from the strip material. The methods used by defendant were a modification of the procedure of the machine of the Clark patent No. 1,134,031, the procedure of the machine of the Johnson patent No. 1,852,578 and the procedure of the Cohn patent No. 1,921,808.

The machine used in the Cohn method is in defendant's possession and was shown to the Vice-President and Counsel of plaintiff on August 8th, 1933. The modified Clark machine and the Johnson machine used by defendant are no longer in existence, and defendant has no drawings of said machines other than shown in the Clark patent No. 1,134,031 and the Johnson patent No. 1,852,578 and the Cohn patent No. 1,921,808.

That as to the alleged prior uses by the American Cork & Seal Company and certain of its successors and by the [fol. 70] International Cork Co., the answer made to Q. III applies to Q. IV.

Dated, New York, February 6th, 1935.

Ferdinand Gutmann & Co., by Benno Cohn, Secretary. Hauff & Warland, Attorneys for Defendant.

Duly sworn to by Benno Cohn. Jurat omitted in printing.

[fol. 71] IN UNITED STATES DISTRICT COURT

[Title omitted]

NOTICE RE STATE OF THE ART REFERENCES

SIRS:

You will please take notice that upon the trial of the above entitled cause we shall refer to the following patents, not as anticipations, but simply as showing the state of the art:

Painter, #792,284, June 13, 1905;
 Painter, 887,838, May 10, 1908;
 Wheeler, 887,883, May 19, 1908;
 Alberti, 1,401,300, Dec. 27, 1921;
 Marsa, 1,603,786, Oct. 19, 1926;
 Keeran, 957,064, May 3, 1910;
 Warth, 1,867,637, July 19, 1932;
 Warth, 1,788,260, Jan. 6, 1931;
 Recht, 796,356, Aug. 1, 1905;
 Johnson, 408,177, July 30, 1889;
 Warth, 1,908,498, May 9, 1933,

and possibly others.

Yours, etc., Hauff & Warland, Attorneys for Defendant,
 41 Park Row, New York, N. Y.

[fol. 72] To Messrs. Gifford, Scull & Burgess, 141 Broadway, New York, N. Y., Attorneys for Plaintiff.

Service of a copy of the within notice is admitted this — day of May, 1935.

Gifford, Scull & Burgess, Attorneys for Plaintiff.

IN UNITED STATES DISTRICT COURT

[Title omitted]

STIPULATION AS TO SHIPMENTS

It is Stipulated and Agreed that the information as to defendant's sales of crown caps for the years 1924 to 1927, as requested from the witness Cohn by plaintiff, is as follows:

[fol. 73] Defendant's Crown Shipments 1924-1927

	Without Center Spots		With Center Spots		Total
1924	649,649 gross		729 gross		650,378 gross
1925	798,149 "		12,396 "		810,545 "
1926	1,000,897 "		11,089 "		1,011,986 "
1927	851,796 "		12,608 "		864,404 "

It is Also Stipulated and Agreed that a copy of the license agreement, of which the Supplemental Agreement referred to in the answer to Interrogatory 10 (Exhibit OOOO) is a supplement, may be attached to said Supplemental Agreement with the same force and effect as if it had been originally incorporated in such answer.

George F. Scull, Counsel for Plaintiff. Hauff & Warland, Counsel for Defendant.

New York, N. Y., December 9, 1935.

Ordered, that the foregoing stipulation be incorporated with the same force and effect as if the evidence referred to therein had been offered at the trial.

Marcus B. Campbell, U. S. D. J.

[fol. 74] IN UNITED STATES DISTRICT COURT, EASTERN DISTRICT OF NEW YORK

CROWN CORK & SEAL CO., INC., Plaintiff,

VS.

FERDINAND GUTMANN & Co., Defendant

Statement of the Evidence

Before Hon. Marcus B. Campbell, U. S. D. J.

Brooklyn, N. Y., November 6, 1935.

APPEARANCES

George F. Scull, Esq., and John J. Darby, Esq., Solicitors for Plaintiff.

Hauff & Warland, Esqs., Solicitors for Defendant, by William E. Warland, Esq., Francis H. Warland, Esq., and N. L. Leek, Esq., of Counsel.

(Mr. Scull made an opening statement on behalf of the plaintiff.)

OFFERS IN EVIDENCE

Mr. Scull: If your Honor pleases, I first offer in evidence a bunch of patents in suit. The names and numbers are: McManus No. 1,339,066, of which claims 3 and 8 are involved.

[fol. 75] The Warth patent No. 1,899,782, of which claims 7 and 9 are in issue.

Warth patent No. 1,899,783, of which claim 4 is in issue.

Warth reissue patent No. 19,117, of which claims 1 and 3 are in issue, and

Warth patent No. 1,967,195, of which all three claims are in issue.

Warth patent No. 1,956,481, of which claims 6 and 16 are in issue.

(Marked Plaintiff's Exhibit 1 in evidence.)

Mr. Scull: I offer in evidence a letter dated April 2, 1934, and another one dated April 26, 1934, and one dated July 18, 1934, which are the notices of infringement, the receipt of

which is acknowledged by the defendant on or about the dates appearing on these letters.

(Marked Plaintiff's Exhibit 2 in evidence, three letters.)

Mr. Scull: I offer in evidence a stipulation which covers various matters agreed on between the plaintiff and the defendant, and the part of immediate interest would be the stipulation as to the various infringing constructions.

(Marked Plaintiff's Exhibit 3 in evidence.)

Mr. Scull: I offer in evidence a cap, one of the ones referred to in the stipulation as A.

(Marked Plaintiff's Exhibit 4 in evidence.)

Mr. Scull: I offer in evidence one of the caps marked B in the stipulation.

(Marked Plaintiff's Exhibit 5 in evidence.)

Mr. Scull: I offer in evidence a cap, one of those marked C in the stipulation.

(Marked Plaintiff's Exhibit 6 in evidence.)

Mr. Scull: I offer in evidence a cap which is one of those marked D in the stipulation.

(Marked Plaintiff's Exhibit 7 in evidence.)

[fol. 76] Mr. Scull: I offer in evidence a cap which is one of those marked F in the stipulation.

(Marked Plaintiff's Exhibit 8 in evidence.)

Mr. Scull: I offer in evidence a strip of foil which was part of that marked G in the stipulation.

(Marked Plaintiff's Exhibit 9 in evidence.)

Mr. Scull: I offer in evidence a strip of foil which was marked H in the stipulation.

(Marked Plaintiff's Exhibit 10 in evidence.)

Mr. Scull: I offer in evidence a strip of foil which was marked I in the stipulation.

(Marked Plaintiff's Exhibit 11 in evidence.)

Mr. Scull: I offer in evidence a paper strip which was marked J in the stipulation.

(Marked Plaintiff's Exhibit 12 in evidence.)

Mr. Scull: I also offer in evidence at this time, your Honor, in a combined form some of the interrogatories directed to the defendant and the answers thereto.

(Marked Plaintiff's Exhibit 13 in evidence.)

Mr. Scull: I offer in evidence a copy of the Johnson patent No. 1,852,578, referred to in the interrogatories and in the stipulation.

(Marked Plaintiff's Exhibit 14 in evidence.)

Mr. Scull: I offer in evidence a copy of the Cohn patent No. 1,921,808 also referred to in the stipulation and in the interrogatories.

(Marked Plaintiff's Exhibit 15 in evidence.)

(Mr. Warland made an opening statement on behalf of the defendant.)

[fol. 77] JOHN W. GILBERT, called as a witness on behalf of the plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. Scull:

Q. 1. Mr. Gilbert, where do you reside?

A. 11 Albert Street, South River, New Jersey.

Q. 2. What is your occupation?

A. Chemist.

Q. 3. And you are connected with the duPont Company, are you?

A. Yes.

Q. 4. At their Parlin plant?

A. Yes, the Parlin plant, at Parlin, New Jersey.

Q. 5. How long have you been so connected?

A. Since 1923.

Q. 6. Are you familiar with the composition of cement sold by the duPont Company and known as No. 4620?

A. Yes.

Q. 7. And does that cement contain both nitrocellulose and resin?

A. It does.

Q. 8. And the resin is of what character?

A. It is a synthetic resin of the alkyd or polyhydric alcohol-polybasic acid type.

Q. 9. And all cement I understand that has been sold under this No. 4620 is of this character?

A. Yes.

Mr. Scull: That is all.

Cross-examination.

By Mr. Warland:

X Q. 10. Are you employed by the duPont Company?

A. I am.

X Q. 11. Did you examine the caps made by the plaintiff and sold by the plaintiff the Crown Cork & Seal Company?

A. I have.

[fol. 78] X Q. 12. And what do they use, do they use the No. 4620 cement also?

A. Yes, sir.

X Q. 13. The same adhesive that the defendant uses?

A. I believe so.

X Q. 14. Have you examined the defendant's cap?

A. No.

Mr. Scull: If your Honor please, I put this man on merely to prove the make-up of the No. 4620 cement. I do not think that opens up the field to a large cross examination.

The Court: He is making him his own witness, of course. If you go beyond the composition of the cement, you make him your own witness.

X Q. 15. In your duties with the duPont Company do you have anything to do with the sale or advertising of this article?

A. I do not.

X Q. 16. Do you know to whom it is sold principally?

A. I cannot answer that, I am merely the chemist.

X Q. 17. You have no knowledge of the sales?

A. No, sir.

X Q. 18. Do you happen to know when the Crown Cork & Seal Company first bought this No. 4620 cement from the duPont Company?

A. No, sir, I would have no way of knowing.

X Q. 19. You know that they buy it now?

A. Yes.

X Q. 20. And in substantially large quantities?

A. Yes, that is so.

X Q. 21. Do you know what they use it for?

A. For cementing the center spots to the cork.

Mr. Warland: That is all.

[fol. 79] ANDREW WEISENBURG, called as a witness on behalf of the plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. Scull:

Q. 1. Where do you reside, Mr. Weisenburg?

A. I reside in Philadelphia, Pennsylvania.

Q. 2. And your occupation?

A. Consulting engineer.

Q. 3. What is your education, and qualifications which have any bearing on the subject matter of the patents here in suit, to wit, crown corks, and particularly spot crowns; just tell the Court, will you, briefly?

A. I graduated from the University of Tennessee in 1909, taking my engineering degree, and practiced as a mining engineer until August 1, 1916.

Q. 4. Where did you take your engineering degree?

A. I took this engineering degree at Tennessee, and also spent three years at Pennsylvania State College and the University of Pennsylvania, specializing in chemistry and engineering. I then practiced as a mining engineer till 1916, August 1st, when I bought control of the Standard Crown Company, manufacturers of crowns in Philadelphia. This company was a successor to the American Cork & Seal Company, also a manufacturer of crown products. I operated the Standard Crown Company until March, 1929, when the assets of this company were sold to the Bond Manufacturing Company, a manufacturer of crowns and cork products in Wilmington, Delaware. I remained with the Bond Company until June, 1930, when I entered the employ of [fol. 80] the Crown Cork & Seal Company. I remained with the Crown Cork & Seal Company of Baltimore until about August, 1934, when my services were discontinued.

Q. 5. Now, since your contact with the crown cork industry in 1916, what has been your particular relation to it, by that, what has been your particular interest and connection?

A. My earliest contact in the crown industry was in 1916, when I was negotiating the purchase of the Standard Crown Company. I served as president of this company, but due to my engineering and chemical training my prime interest in the company was in the development of better machines for manufacturing crowns and the development of new types of closures. When I entered the employ of the Bond Company I was engaged in the designing of a machine for manufacturing closures. My entire time at the Crown Cork & Seal Company was in research and development, and for that purpose, a few weeks after I entered their employ, a special laboratory was built for me and I was placed in charge; in other words, since 1916, I have engaged exclusively in the manufacture of crowns, its development and its research, and have done nothing else.

Q. 6. Now, my understanding is that the crowns we are going to talk about here are primarily the metal cap or shell, rather, with a cork disc in it, sometimes natural and sometimes a composition cork; just explain briefly what is the purpose of the cushion or disc in that metal shell.

A. The function of the disc is to have a resilient liner so that we have a compression member which will enable us [fol. 81] by the pressure formed upon the metal shell to get a positive seal, and retain a high pressure in the bottle.

Q. 7. And for that purpose is it necessary that the cork shall be directly in contact with the bottle?

A. It is absolutely necessary that the cork liner be in contact with the sealing lip of the bottle. It is well-known to every engineer that it is impossible to get a tight seal with two smooth members unless you grind them, or in some manner make them absolutely fit. Where you do not do this it is necessary to have a resilient member to take up the irregularities of the sealing lip.

Q. 8. Merely to give us a basis on which to work, I have had you prepare a chart here of what I understand to be a typical machine and procedure for making the ordinary crowns, in which a series of crowns is shown as being moved along step by step beneath a series of instrumentalities, an adhesive being first dropped into the shell, and then the shell

being heated to heat the adhesive, and then finally a plunger carries a cork disc or cushion down into that shell in which the adhesive has been warmed, and then the disc is held under pressure by certain plungers in a dial until it is cooled. That, I understand, is the typical method of making the ordinary crown caps?

A. More or less, yes.

Mr. Scull: I offer this chart in evidence.

(Marked Plaintiff's Exhibit 16 in evidence.)

Q. 9. Now, it is my understanding that all of the patents here in suit relate to these spot crowns that we have been [fol. 82] talking about where there is a disc of metal foil or paper cemented to the center of the cork disc, that is correct, is it?

A. Yes, sir.

Mr. Scull: I now offer this other chart in evidence.

(Marked Plaintiff's Exhibit 17 in evidence.)

Q. 10. I show you this chart which is marked Exhibit 17 and I ask you to explain the way in which these center spot crowns work, so far as the capping or contacting with the bottle is concerned, using the figure in the lower lefthand corner for that purpose.

A. In the ordinary standard run the punching of the cork disc or liner, as I stated before, is to have a resilient member to take up the inequalities of this sealing metal, in the bottle; as this metal cap is crimped around the sealing lip of the bottle. Where we use an uncovered resilient liner, whether it be composition or natural cork the contents of this bottle are in contact with this liner. Where we use a center spot, the center spot must be accurately centered so that practically one-half of the metal foil or prepared paper will cover about half of the top of the sealing lip. Should this metal foil cover the entire sealing lip then we have a condition where we will not get a perfect seal. Therefore, to overcome that it must be accurately centered so that the prepared paper or foil will not go over one-half of the area of the sealing lip.

Q. 11. What is the purpose of bringing the edge of the foil or paper up so that it is contacted with the bottle?

[fol. 83] A. So that we have a compression of the shell which will also act to compress the metal foil and hold it in

position. In placing such a cap on a bottle, 600 pounds of pressure is used. The result of this is that the resilient member forms an arc shape, and there is quite a stretch here and it is necessary that if this spot only came to the inner area of the lip, there will be a tendency to pull away and the contents of the bottle would get into contact with the cork. By bringing it over the top of the sealing lip we eliminate that possibility.

Q. 12. Will you state what are some of the practical conditions that are met in bottling which these spot crowns have particularly been designed to meet. Give us some idea, for instance, of the special conditions that arise in connection with certain beverages and certain bottle lips.

A. Where you bottle mineral waters for example you have certain conditions or rather the chemical contents of the water will be affected by the cork disc. Where you bottle ginger ales or beers there is a tendency of the cork disc to give what is known as a corking taste or odor to the contents of the bottle. There is also a tendency, when a composition cork is used, to do the same thing plus a tendency of particles to fall into the beverage. There is also the blackening of the cork and the blackening of the binder, all of which has a bad appearance and affects the sale of the beverage.

Q. 13. Now, in modern bottling conditions are bottles sometimes kept for a long time before they are used?

A. In the manufacture of bottled goods it is customary today to manufacture in more or less central plants and they are merchandised in every part and corner of the [fol. 84] United States and the world. For example, Anheuser-Busch can be bought in practically every village and city of the United States and in my experience at practically every large port City in the world.

Ginger ales, such as Canada Dry and Cliquot Club are merchandised in a similar manner. The modern method of merchandising is responsible for this requirement.

Q. 14. That is to say, if I understand you, that the cap must be designed so that it will hold and keep the beverage for these long periods?

A. That is obvious. When a customer buys a bottle of beverage he is not interested at what time or when the bottle was bottled but rather the condition in which he finds it, and, therefore, these crowns must be adapted to hold these pressures or the beverage gets a bad name.

Q. 15. It is a fact though that the plain unspotted crowns are still used in large quantities?

A. Yes.

Q. 16. Why is that?

A. For a certain type of beverage where the consumption is in the locality where the beverage is bottled it is customary to use composition cork discs. One reason is its lower cost, which is practically the prime reason. Wherever bottling is done for a long-time consumption or for particularly high grade beverages, where the time factor is indefinite, two or three months or a year after bottling, before consumption, the bottler will not use composition cork.

Certain nationally known beverages, such as Coca-Cola, will use composition cork, but Coca-Cola is bottled usually in the vicinity where it is consumed. For example, there is [fol. 85] one in New York, a bottling plant in New York, one in Trenton, New Jersey, and one in Philadelphia, and practically every city and town has its own Coca-Cola bottling plant, but where there is any danger of consumption being a long time after bottling, the average bottler will not use composition cork discs.

Q. 17. Now, what is the trade custom so far as the sale of these caps to bottlers is concerned—what about any liability so far as the failure of the cap is concerned?

A. I was in the business and I paid many a claim. It seems that crowns are sold more or less under an implied guarantee and it is very usual, in the crown business, to receive claims from bottlers, not only for the cost of the crowns but for the cost of the bottled goods. The cost of the crowns running anywhere from six or eight or more per cent is slight when compared to the average cost of the goods, and the ingredients and the bottle and so forth, that is much greater than the cost of the crown.

Q. 18. What is the fact as to the test of any new disclosure, particularly these crowns in which we are interested here, so far as the time and varying conditions are concerned? Is that a matter which can be done quickly or does it take considerable time?

A. It takes considerable time, sometimes years before any new type of crown will be adapted by the large bottling concerns or breweries. When one realizes that these bottles are filled and crowned at as high a rate as 160 per minute, and passed out and sold, the bottler—the larger bottlers cannot afford to take a chance and before putting any type

that is new on these bottles he will usually make a long-time test on the new type.

[fol. 86] Q. 19. And how is that test made usually?

A. The usual test as conducted by the bottler is to bottle his beverage and put it away for awhile. If it seems to stand up at home he will send it out to a few favored customers that he knows very well who won't complain too much if it should go bad; in other words, he tries to protect himself, and usually will not adopt a new crown until a year, or anyway six months to a year, or longer.

Q. 20. I wish you would tell the Court briefly some of the types of crowns that have been used. You have already told us of the standard non-spot crown which is still in use, and you told us about the spot crown under the figure entitled, "McManus Center Spot Crown." What other kinds of crowns of this general type have been used or tried to be used?

A. Besides the natural cork crown and the composition cork crown fully exposed to the contents of the bottle we have the type known as an over-all crown. In this type of crown either foil or prepared paper covers the entire cork disc. The objection to this type of crown is that it is impossible to get as good sealing value as it is with the center spot. This type of crown is comparatively easy to manufacture because the surfacing material can be placed on the cork before the assembling operation. It is usual practice to take a sheet of composition cork and fasten thereto the desired facing material. The discs are then punched from this laminated material, stacked in tubes, placed in the assembling machine, and placed in the shell. In a few small instances abroad I know where they make this type of crown by tucking it under the disc itself in an [fol. 87] assembling machine. This naturally is very slow and a costly operation. I have here samples of the usual laminated material. It shows a cork backing, or cork coated with different types of paper and metal foil.

Q. 21. My understanding is as to these materials you have in your hand, in reality what you do is punch out a disc which takes the place of the cork or composition cork of the disc of the standard non-spot crown?

A. Yes.

Q. 22. And it is simply handled as such in the assembling machine?

A. The disc from this laminated material can be fed and used in an assembling machine exactly the same as if natural or composition cork disc is used, the only requisite is that they must be stacked in tubes so the surface of the material is all one way. There is no difficulty in assembling this crown as a center spot, you do not have to center it or face it in operation, so it is a very simple operation.

Q. 23. Can that sort of crown, however, be used for pressure beverages?

A. It can be used, but its value for holding high pressure beverages is not as good in any shape, manner or form, as the center spot.

Q. 24. To what extent is it used?

A. On certain waters, like Apollinaris, and maybe one or two others, but I do not know of any other beverage using it. I do not know of any bottler in the United States using that type of crown, to my knowledge.

Q. 25. Now, on this chart there is one marked, "White Rock Crown." I wish you would tell us about that.

[fol. 88] Mr. Scull: First I offer the batch of laminated material referred to by the witness as Exhibit 18.

(Marked Plaintiff's Exhibit 18 in evidence.)

A. In the White Rock or Stewart crown we have a crown, which, in my opinion, was the first to successfully use a center spot crown. In this type of crown the center spot is mechanically held in the crown. This is done by scoring the cork shell and placing in there a cupped or flanged piece of metal foil. There is no adhesive used in this type of crown. I manufactured this crown for a great number of years, and controlled the patent, and I eventually sold the machinery and the patent and my interest to the White Rock Company. In this type of crown, as one can readily see, it is necessary to cut or score into the disc. The metal foil is then placed into that cut or score. This means that the cutter must cut this circular cut or score during the assembling operation. Such a cutter has to run about 5,000 revolutions per minute. The cutter heats up and it gets dull. You have particles in natural cork discs which are hard and resinous and they tend to dull and heat up the cutter. This results in the machine running very slowly. The best I ever got out of these machines was 90 per minute.

Q. 26. Can you use composition cork with this?

A. Composition cork is made up of particles of natural cork. The binder used for this type of composition cork is either gelatin, glue, casein, albumen or synthetic resin. One can readily see that the cork is not placed therein in [fol. 89] any particular manner. It is a conglomerate and it is impossible for the cutter to make a uniform cut so we can enter this flanged metal therein easily. I tried for years to manufacture this type of crown with composition cork, but could not do it. The only approach at all to success was by scoring and cutting the disc in the composition cork before I entered them in the shell, but I did not find this commercial, and abandoned the effort.

Q. 27. What is the relative expense, or relative difficulty, of using natural cork as compared with composition cork?

A. Composition cork will run around three cents per gross. High grade natural cork today will run around twelve, eleven, ten cents per gross.

Q. 28. And does White Rock use that high grade cork?

A. White Rock purchase from the Crown Cork & Seal Company the highest grade of natural cork obtainable. Natural cork, by the way, is a natural growth, and you can only get a high grade by selection, by picking out the best of the cork.

Q. 29. What is the effect, so far as this particular Stewart or White Rock crown is concerned as to its use, to what extent is it used?

A. When I manufactured this crown I received from forty-two to forty-eight cents a gross. I was only able to sell this crown to the White Rock Company and a few others who could afford to pay the price, therefore, its use is quite limited.

Q. 30. What would you give as the price today of the spot caps which are involved here?

A. Twenty-two to twenty-four cents a gross.

Q. 31. That is to say, about one-half of what you had to sell White Rock at?

A. Yes.

[fol. 90] Q. 32. What about the possibility of using paper instead of metal in this Stewart or White Rock crown top?

A. For certain types of beverages it is impossible to use a metal foil, and we have to use a specially prepared type of paper, that is, on pale ginger ales it is impossible to take

a piece of paper, cup it and insert it in a disc in the manner of this particular patent.

Q. 33. That is the Stewart patent?

A. The Stewart patent.

Q. 34. In other words, this Stewart or White Rock crown is limited to metal spots?

A. It is limited to metal spots and natural cork.

Q. 35. Now, then, I call your attention to another figure entitled American Cork & Seal Company, Bartlett and Keller patents, and ask you to explain what that is?

A. As I stated before, my company was the successor to the American Cork & Seal Company. When I purchased the Standard Crown Company I found in their possession the machines for manufacturing this type of crown.

Q. 36. That is the type of crown shown in the middle figure?

A. Shown in the middle figure here. This type of crown uses a ring instead of a disc and leaves no resilient member in the center. In the center of the crown they used metal foil which was cupped and flanged so that the center could be adhered to the crown and the flange be used to hold the rubber ring in place. I have samples here of such a crown. This was the type of metal foil, cupped and flanged, and the bottom of this foil was adhered to the metal shell. This flange was used to hold the rubber ring in place.

Q. 37. As I understand this construction this rubber ring [fol. 91] was the equivalent of the cork, or took the place of the cork?

A. Yes, sir.

Q. 38. And it was not itself adhered to the metal shell?

A. No, sir.

Q. 39. And that this so-called center spot was in reality used as a means to hold that rubber ring to the shell?

A. Yes, sir.

Q. 40. And at the same time it did protect the rubber ring from the contents of the bottle?

A. Yes, sir.

Q. 41. How was this cup—I will call it center spot, it really isn't—held to the shell, how was that done?

A. It was done by solder. In the manufacture of this type of crown the shell came into the assembling machine and was given a stop and go motion. At the first stop station a rubber ring was placed in the shell. At the next stop station a drop of acid was placed inside of this ring. At

the next station, solder was placed on top of the acid. It is then necessary at the next station to heat this acid and solder and at another station smear over the center. Then this cap metal foil was placed therein and then more heating, so as to fuse the solder and then a few plunges to enable the solder to cool under pressure. This manufacture was a mess. I was unable to use the machines. I tried for practically a year and I had several mechanics working on it—but I was unable to manufacture them commercially, and they would cost me about one dollar a gross to make them and I never placed them on the market and I could not see any market for that.

Q. 42. Now, you have already referred to this McManus center spot crown. What would you say as to the quantity [fol. 92] of those center spot crowns that are made and sold today, particularly in proportion to the total output?

A. From the figures that I have available I would say that the total production of crowns today—that 30 per cent are center spot type. The Crown Cork & Seal Company will manufacture about nine million gross of this type crown in 1935. They are manufacturing at the rate of over 500 per minute and I mean by that the facing disc is placed on the cork and the crown at the rate of over 500 per minute, or eight or nine per second.

Q. 43. When you say 500 per minute, you mean that a given section does that—each unit produces 500 a minute?

A. Each unit produces more than 500 per minute.

Q. 44. Now, in the type of this McManus crown that you have been telling us about, how is the center spot fastened to the disc, by what material?

A. In the McManus crown?

Q. 45. Or in the crown that you have been telling us about.

A. By a thermoplastic.

Q. 46. What do you mean by that?

A. A material which becomes tacky under heat and it is hard under cold.

Q. 47. And what are the two particular types of thermoplastics which have been used and are being used today?

A. Gutta percha and du Pont No. 4620.

Q. 48. Does anybody today make and sell this form of crown which is depicted here in the figure "American Cork & Seal" crown?

A. Not to my knowledge.

Q 49. Aside from the White Rock type is there any form of spot crown which is on the market today and used to any considerable extent other than this paper or foil center spot facing to the cork disc by thermoplastic adhesive?

A. By any other but a thermoplastic?

Q. 50. Yes.

A. Not to my knowledge.

Q. 51. Now, you have read the patents in suit?

A. Yes, sir.

Q. 52. I wish you would briefly touch on the McManus patent and tell us what it describes.

A. This McManus patent describes a center spot cap of the adhesive stick type, in which the center spot F of the drawing Fig. 2 is united to the cork disc E by an adhesive. McManus explains so far as the shell and the cushion disc portions are concerned these are to be the same as were used in the art and well known at the time of the application, namely 1915. He states that the cushion disc itself is made of granular cork, the granulations being connected by an insoluble binder. He states that the disc is attached to the shell by a fusible binding medium. The binding medium then in commercial use was a natural gum or resin, either in alcoholic solution or coated on a paper. This alcoholic solution, after being spread in the shell, or the coated paper disc, were then fused to heat the gum, and after the resilient disc therein was placed under pressure so it could be set while cooling.

McManus also pointed out that the facing disc was to be of smaller diameter than the compression disc so as to come in contact with the sealing lip of the bottle.

McManus pointed out on page 3 at line 39, "The disc F is so positioned as to be spaced within said line of greatest compression and yet it may be and preferably is in contact with the inner edge of the bottle lip."

He shows this in all his drawings as illustrated on the [fol. 94] sketch, as well over the exterior opening of the bottle mouth and that is in fact the way practically all crowns or center spot crowns are made today. This insures the fact that the edge of the metal disc will participate in the compression of the metal shell. To do this, he points out it is necessary to have the center spot exactly positioned so that it will permit the cushion disc to give the proper seal.

Q. 53. What about the character of the adhesive that he proposes for the paper spot?

A. The adhesive for holding the spot to the disc? /

Q. 54. Yes.

A. He says, on page 2, line 73, "This disc F may be made of hard parchment paper or of any other paper so treated as to make it non-absorbent. This flexible disc F is secured in place upon the compressible disc E by means of a binding medium, preferably such as that which is used as a bond for the granules of the composition disc or for uniting said disc to the metallic cap. By using this bond, the disc E and disc F may be assembled in relation to the cap and to each other by one and the same operation if desired."

Now, in this quotation McManus is saying that he can use a gelatine coating, casein or albumen as a binder or the binder as then used for making the composite cork or a heat-fusible medium for attaching the spot or facing disc to the cushion disc. It is the heat-fusible unit adhesive that has gone into universal use for fastening the spots to the cork disc.

Q. 55. It is this heat-fusible cement I understand which was then commonly in use, to fasten a disc into the shell, is that right?

A. Yes, sir.

Q. 56. And when he says that the two operations can be [fol. 95] done at the same time what do you understand he meant should be the character of the cement under the spot?

A. It would be obvious to me that where he cared to cement the cork disc to the shell and the center disc to the cork disc he would want to use the same type of adhesive, in other words a heat-fusible adhesive for both purposes.

Q. 57. I notice you use the expression "heat-fusible." Suppose the expression were simply "fusible binding means" what would that mean?

A. That would mean the same thing.

Q. 58. In other words the word "fusible" itself connotes heat?

A. Yes.

Q. 59. Have you compared spot crowns which are stipulated here as of defendant's manufacture and which are exhibits 4, 5, 6, 7 and 8, with this McManus patent in suit?

A. Yes.

Q. 60. What can you say as to the relation between those caps and the disclosures of the McManus patent?

A. The caps, I have them here as A. B. C, D and F, and they are exhibits numbered 4, 5, 6, 7 and 8—

Q. 61. Yes.

A. The McManus patent describes a spot of suitable material, whether paper or metal foil. Each one of those caps has such a center spot.

McManus describes a heat-fusible adhesive to hold the spot to the cork disc. Cap D, which is Exhibit 7, and F which is Exhibit 8, have gutta percha as an adhesive and this is heat-fusible. Cap B which is Exhibit 5 uses the duPont No. 4620 and this is also thermoplastic or heat-fusible.

Q. 62. And the same thing is true of Exhibit 4, which is the A cap?

A. Yes, that has the No. 4620 duPont.

[fol. 96] Q. 63. And similarly it is true that Exhibit 6 uses gutta percha, and that is a thermoplastic?

A. That's right.

Q. 64. Do any of these use a fusible medium to attach the disc to the shell?

A. Caps A and F which are Exhibits 4 and 8 have such a bonding means which I have ascertained by test.

Q. 65. Now, will you turn to the Warth reissue patent No. 19,117 and explain what is the disclosure of that patent as to the method described in it.

A. In this patent Warth describes a method by which the center spots of the McManus patent can be applied to the crowns in a highly efficient manner.

Warth in his specification refers to various ways in which the center spot crowns have been produced. First he refers to what I have called the White Rock crown and which Warth says is objectionable for many reasons.

Secondly he refers to the pasting of the center spot to the cork disc by casein, paste or glue, and he points out that such adhesives are liable to be attacked by the contents of the bottle and there are many difficulties, he says, in applying such paste or glue. I have seen many attempts to use such paste or glue and I know the many difficulties that are run into.

Any solution or adhesive which requires liquid or moisture at the time of deposit presents many difficulties. It is impossible to apply it—the liquid or paste and be sure that the liquid covers the entire disc. Compared to

our present rate of manufacture, of over 500 discs per minute it is impossible to use any liquid past- or glue. First, because of the difficulty of positioning the center spot accurately in the center of the cushion disc. These center spots [fol. 97] must be accurately positioned. If they are not, they will lose their function, the crown will not function.

All of us have had experience with a postage stamp which has been moistened excessively. We put it on the envelope and it skids all over, smearing the envelope. The same thing would happen when liquid paste or glue were used in fastening the center spot to the disc. Secondly, with the stop and go motion of the machines it would be impossible to run this machine at any decent speed where a liquid paste or glue were used. Another trouble would be, it would be necessary to hold the crown until the glue were set or otherwise in the movement of the crown the center spot would not longer be centered, slowing up the operation. A liquid will exude a smear all over the cork disc.

Q. 66. My understanding is you have seen attempts made and probably made them yourself, to use this soluble type?

A. Yes.

Q. 67. And you are not saying that if one wanted to, in a laboratory, that you could cut out and paste on one of these discs by hand and have it right?

A. That could be done, I have done many of them perfectly.

Q. 68. But the trick here, as I understand your testimony is to do it at such a speed as to make it commercially possible?

A. Yes. Then your biggest trouble would be the wetting of the plunges. They become gummy and you have to stop the machine. In fact, it is impossible to do it commercially.

Q. 69. Does anybody so far as you know use that method today?

A. No.,

[fol. 98] Met pursuant to recess at 2:00 p. m.; present as before.

ANDREW WEISENBURG, resumed:

Direct examination.

By Mr. Scull (Continued):

Mr. Scull: I offer in evidence a box of Crown caps.

(Marked Plaintiff's Exhibit 19 in evidence.)

Mr. Scull: Similarly I offer in evidence a box of so-called White Rock caps.

(Marked Plaintiff's Exhibit 20 in evidence.)

Q. 70. Now, will you continue your description of the disclosure in the Warth reissue patent in suit?

A. Now, returning to the Warth specification of his patent, on page 1, line 35, he speaks of another method of securing the spots in which the underlying tissue of gutta percha or coated paper is used. By this he means a method in which a separate strip of gutta percha was fed from one reel, and the facing material, such as the metal foil, was fed from another.

A disc of gutta percha and a disc of foil are punched and applied to the compression disc with the gutta percha facing the disc and sealing disc, and then pressure applied.

As Warth points out this involved the feeding and handling of a strip of thin gutta percha which was liable to break and had the added uncertainty—there was no security that the gutta percha was under the facing disc.

To meet these objections as I understand this patent, [fol. 99] Warth has proposed a method which involves the following steps: A thermoplastically coated strip is positioned beneath a punch and over a die and over a crown with an adhesive coating on the underside; two, a punching operation is employed to position the spot centrally on the cork disc; three, at the time of assembly or instantly with the assembly the combined spot and cork disc are subjected to heat and pressure. Each of these steps are described in the specification. On page 1, at lines 91 to 107, he describes the advantages of using this combination strip.

Q. 71. By combined strip you mean the material of the strip with the thermoplastic coating on it?

A. On the facing material, yes. He says for this, many materials may be used for this facing material. He also says many materials may be used as an adhesive. He says that the coating is applied to the facing strip in a fluid form and it is dried and that the center spot can then be cut from this combined strip, that is the facing material with the thermoplastic coating on one side, with the sureness that the adhesive covers the entire area of the facing strip.

This can, of course, be done and is done in a separate operation where particular care is taken as to the thickness of the adhesive coating and particular care can be taken that the adhesive covers the entire area of the facing strip. In other words, we are sure of perfect union before the facing strip is set into the machine.

The second step, using a punching operation over the crown cap, to apply the disc to the cap is described on page 2, line 67. It says, "In this connection it is noted that the [fol. 100] spots may be conveniently assembled by feeding the strip of material over successive crown corks and cutting out the disc which is deposited on the cork, such assembling machinery being well known in the art."

When a center spot is cut out, the disc being cut from this combined strip directly over the crown cork, the center spot is pressed down on the cushion disc with the adhesive next to the cork. Strip feeding and strip punching machinery are well known and old in the crown manufacturing art.

The third step, the use of heat and pressure instantly with assembly or at the time of assembly. The patent makes this perfectly clear. For example, in the specification at page 2, lines 109 to 111, "At the time of assembly the coating material is softened to render it adhesive and the assembly unit is subject to pressure." At page 3, lines 45 to 50, "The preferred method of applying the material to the cap is to utilize, at the time of assembly both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap."

Page 3, lines 91 to 96, "At the time the disc is assembled with the cap, the heat and pressure will cause the disc to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid of likelihood of displacement of the disc thereafter."

Page 3, lines 108 to 111, "Moreover, when the metal foil is assembled with the sealing disc it is already prepared for

being stuck in place, the sticking being accomplished by the simple application of heat and pressure."

[fol. 101] The three steps here described are vital and constitute a three-step combination method. For example, with the thermoplastically coated facing material arranged as described, under a punch, over a die and over a crown, whereby the punching operation may also position the spot, we still lack a complete method. There is required the further vital step described in the specification, namely, the use and application of heat and pressure instantly with assembly or, as Warth here describes it, at the time of assembly.

This last step of applying both heat and pressure instantly with assembling serves the useful purpose of positioning the center spot centrally in the cap and enables it to stay put until further operations can be performed. This must be done instantly. Where you are running a machine at 500 per minute there is no time to wait, and one must be sure that the spot is centrally positioned.

The use of heat and pressure instantly with deposit of the spot might be considered the keynote of the entire operation. However, the three steps are like, I might say, the three steps of a tripod. Without any one of these steps the method will not function.

He also mentions further steps in his specification, page 2, lines 111 to 114, "In carrying out the invention according to what is now considered the best practice the coating will be softened by heat after the crown is assembled," this step of applying heat and pressure, for example, by a plunger, so that we have described in the patent the steps of applying heat both at the time of assembly and after [fol. 102] assembly. The final step of subjecting the heat to pressure while cooling is described on page 3, lines 98 to 103, "The assembled unit is then permitted to cool and the cooling may advantageously be coupled with pressure, for example, by a plunger. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material."

If we look at the drawing we will see punch 20 with the combined strip underneath this punch 20 and over the die 19. Consequently, we have the relationship which satisfies the first two steps of the method, positioning the thermoplastically coated strip over a cap and beneath the punch, and, second, utilizing the punching operation to apply the

spot to the composition disc. The vital step of using heat and pressure instantly on assembly, or, as he says, at the time of assembly, is illustrated by the application of heat from a gas burner. It is directed against the punch 20, which seems to transmit the heat to the assembled unit so we have illustrated here a mechanical method or means for getting heat and pressure applied instantly on assembly. There is no illustration shown of the cooling under pressure, but this is well-known.

Q. 72. That is, you mean the mechanism by which the discs in the shells are held while they are being cooled, that was old, in the old assembly art?

A. That is old, and this method of using a rotary pressure is well known in the art and is part of practically every crown cork assembling machine.

The Court: It says in the patent it may be perfected in any suitable manner.

Mr. Scull: Yes.

[fol. 103]. A. (Continuing.) This combination of steps, as far as I know of, is the only method used today for manufacturing center spot crowns. Without this method I doubt if we would have an economical method of making center spot caps.

Q. 73. While we are on that subject I call your attention to a chart which you made for me and which I offer in evidence as Exhibit 21.

(Marked Plaintiff's Exhibit 21 in evidence.)

Q. (Continuing.) —and I ask you whether that illustrates the Warth method that you have just been describing as being found in this reissue patent in suit?

A. It does, sir.

Q. 74. My understanding is that the upper figure here shows the situation as it is when the combined strip is in position ready to have a punching cut from it by the punching die and be carried down on top of the cushion of this assembled unit, is that correct?

A. Yes, sir.

Q. 75: And then below there is a succession of figures showing how the assembled crowns move along from left to right, first receiving the cushion disc—first receiving the spot and being pressed down by this warmed punch and then the second one shows the application of heat again

as the fourth step, and finally the cooling under pressure?

A. Yes, sir, that is the method as I see it.

Q. 76. Will you turn to the Warth patent 1,967,195 in suit and describe what that shows?

A. This patent describes a variation of the reissue patent which I have just discussed. It describes the same combination of steps, but it describes a different method of applying the heat, so that in combination with pressure it is used instantly at the time the spot is coated and deposited.

The reissue drawing illustrates heat as being applied to the plunger and then through the latter the heat is transmitted to the liner of the cap. This latter patent suggests the direct application of heat to the cap, preferably before the spot is deposited, so that there is stored in the cap and particularly in the liner——

Q. 77. By the liner you mean——

A. Cork liner.

Q. 78. The cushion liner?

A. The cushion liner, to be available at the time the spot is deposited, sufficient heat to render the adhesive tacky the instant it engages the liner. This is only another way of doing the same thing that Warth teaches in the reissue patent, that is, utilizing the heat and pressure instantly at the time of assembly. It accomplishes the same final result, namely, applying heat combined with pressure at the instant the spot is deposited.

Mr. Scull: I now offer in evidence this chart.

(Marked Plaintiff's Exhibit 22 in evidence.)

Q. 79. I show you this chart marked Plaintiff's Exhibit 22 and I ask you whether that illustrates the set you have been telling us about?

A. Yes, that is correct.

Q. 80. And what you have shown here at the second figure from the left on a straight line across the sheet is a gas heater which is above and supplies heat to the liner or the cork disc just before it reaches the point where the spot [fol. 105] is applied to it, that is correct, isn't it?

A. Yes, that is correct.

Q. 81. And from that time on the additional heat and cooling is the same as in the reissue?

A. The same thing.

Q. 82. And is that a practical thing, to apply gas heat in that fashion?

A. It is very practical, yes, sir.

Q. 83. Now, it has been stipulated that the defendant makes its caps or did make these caps on a machine like the Johnson patent No. 1,852,578 which is Exhibit 14 and that later they turned to a machine or method such as is shown in the Cohn patent No. 1,921,808 which is Exhibit 15 and I wish you would, therefore, describe the method of those two patents because in fact they are the stipulated methods used by the defendant. Take first the Johnson patent 1,852,578.

Mr. Scull: Preliminary, however, I shall offer this chart in evidence.

(Marked Plaintiff's Exhibit 23 in evidence.)

Q. 84. Now, I ask you whether you have prepared this chart to show this method according to the stipulation, as that method is shown in the Johnson and Cohn patents respectively.

A. I prepared that chart.

Q. 85. Now, will you please explain the Johnson and Cohn methods?

Mr. Warland: I don't want to make any objection, your Honor, but I do not believe that is a correct chart or statement of the Cohn method.

[fol. 106] The Court: Well, that is his version of it. It may not be correct, that will be a matter of proof.

A. In the Johnson patent we have a thermoplastically coated strip material or liner material placed underneath a punch and over a die and over a crown. The punch is used to cut the disc and position the same on the cork disc. The assembled crown, passing through the machine radiates heat, in this case, directly to the cork liner through an electric heater. The crown facing disc is punched and placed in the crown exactly as in the Warth patent. The heat and pressure, after placing the spot, is done exactly the same as in the Warth patent except that they use electric instead of gas heat. They have the cold and pressure plunger exactly the same as the Warth method. There is no essential difference between this and the second Warth patent except electric heat in place of gas heat.

Q. 86. And is that method you have just described found in the Johnson patent?

A. This is the method I found in the Johnson patent.

Q. 87. And do you find those same steps and the same arrangement in the Cohn patent?

A. I find the same steps and the same arrangement in the Cohn patent with one difference and that is this; in the Cohn patent the cork discs are not firmly adhered to the metal shell. He places his adhesive in the shell and places his cork disc on top of it and then heats this cork disc and the thermoplastic or whatever type of adhesive he uses, and then the following steps are identically the steps as shown here and identical to the Warth method.

[fol. 107] Q. 88. Does the fact that the cork disc is not adhered to the shell affect in any way, in the Cohn patent, the method by which the spot is adhered to the cork?

A. Absolutely not.

Q. 89. And the only point as I understand it is that by using a heat-fusible or fusible cement to hold the cork disc into the shell, he can, by a single operation at the point marked second step on Exhibit 23, cause not only the disc—the center spot to be adhered to the disc but also the disc to be adhered to the shell, is that correct?

A. There is no essential difference. Just exactly at what points the cork disc is adhered to the shell is difficult to know because you only see the final result when it comes out, but the essential step of getting the center spot and placing it under a punch and over a die, and putting it on a cork disc is essentially the same, in my opinion, as the Warth method.

Q. 90. At any event in this Cohn patent the method that he uses, fusible cement between the cork disc and the shell—I am talking about the patent now, is the same, isn't that true?

A. Yes.

Q. 91. So when he finally does apply the pressure it is when the center spot has been placed on the cork so that the one pressure not only forces the spot down to the cork, but forces the cork against the fusible cement which has been heated between the cork and the shell, in one operation, is that right?

A. That is substantially correct, but I know that he uses a heat coagulate, which I know is not thermoplastic, on some of his discs, but the function is the same. The final

adherence and the total pressure begins here—the final pressure is in the rotating pressure dial.

Q. 92. At any event, as I understand it, the only thing [fol. 108] in the Cohn patent that he describes is heat-fusible cement to be used to hold the cork into the shell?

A. Yes.

Q. 93. When he does use that kind of a heat-fusible cement he is using the same kind of a cement as is used to hold the spot to the cork?

A. Yes.

Q. 94. Now, Mr. Weisenburg, will you turn to the Warth patent 1,899,782 in suit and tell us what that shows?

A. This patent describes a combined strip of facing material with center spots and heat-fusible adhesive and is the type of material used in the re-issue patent.

Q. 95. In other words, my understanding is this simply describes the combined strip which you have been telling us about as being one of the essentials of the re-issue method?

A. Yes, sir. We turn to Fig. 1 of the patent. He shows how adhesive such as gutta percha can be placed on the facing material and other paper such as express or kraft paper or metal foil. We have a pair of rollers D, E, F. These rollers can be so adjusted that a particular thickness of the gutta percha desired can be placed on the one side of the facing material. This is on page 3, line 102, how this is done. By this method the operator can be assured that the facing material—he speaks here about the thickness of the surface coating and how to control it—by this method the operator can make his facing material prior to use in the center spotting machine and he is assured to have a facing material in which the adhesive coating covers the entire area and is of the proper thickness and in all respects a proper type.

Q. 96. Now so far as coating materials are concerned [fol. 109] you said it referred to both paper and foil and that the paper could be kraft paper. Is there anything else?

A. A paper to be suitable for surface facing would have to be hard and tough and would have to have a gloss and would have to have a suitable varnish coating or it would not function.

Q. 97. Now I call your attention to these strips which are stipulated as having been used by the defendant and

which are now marked as Exhibits 9, 10 and 11 and I ask whether those strips are such as are described in this Warth patent 1,899,782?

A. G and H (Exs. 9 and 10) are coated with gutta percha. I is coated I think with 4620.

Q. 98. That is a thermoplastic composition?

A. Yes.

Q. 99. I also show you Plaintiff's Exhibit 12 which is J of the stipulation and ask you whether this is also described in the Warth patent 1,899,782?

A. This is a varnished paper with a gutta percha backing.

Q. 100. That is described in the Warth patent No. 1,899,782?

A. It is so described, yes, sir.

Q. 101. Do you understand that this Exhibit 12 is a high gloss paper with varnish on one side?

A. I do.

Q. 102. Now will you turn to the Warth patent 1,956,481 in suit and tell us what is described in that patent?

A. This patent describes another form of the Warth combined strip on which he uses a thermoplastic adhesive instead of being gutta percha or the gum that he mentions in the re-issue patent, he describes one here with a cellulose derivative. In the specific form in which he describes this [fol. 110] patent he says that he uses a nitrocellulose derivative and synthetic resin. The patent mentions several suitable resins, known as either glyptal or rezyl resins and these resins and the cellulose are dissolved in a suitable solvent with a plasticizer so that they can be applied to the surface of the facing strip, dried and then used as center spot material. The solvent is necessary so that we can have a cellulose in solution so that it can be applied to the facing strip. This is evaporated, as everyone knows. By a plasticizer is meant a solution which does not evaporate rapidly but tends to remain in the composition and is used to keep the composition soft and flexible. By this combination Warth has described an adhesive which is thermoplastic and which at ordinary temperatures is non-tacky, has a non-tacky surface, but when heated sufficiently becomes tacky and will adhere the spot to the cork. This type of adhesive can be used for spot material exactly in the manner of the Warth description in his patent, his re-issue patent.

The facing material, after being coated in the proper apparatus, can be placed under the punch, over the die, cut and placed on the resilient liner, at the same time with heat and pressure, can be further heated and pressured and then can be cooled exactly in the manner of the Warth reissue patent.

Q. 103. What is the purpose, what is the reason for this combination of the nitrocellulose and the resin, if you know?

A. In my opinion there are many reasons for adding a resin in making an adhesive. I know in my work the first thought was to use cellulose nitrate or an acetate in solution alone. My experiments show that cellulose nitrate or acetate or any of the common forms of cellulose available [fol. 111] commercially are not thermoplastic. True enough, cellulose in solution is used as an adhesive but only as a wet adhesive. By that I mean in the laboratory it is commonplace to take labels and stick them on bottles by using cellulose in solution with a solvent, but cellulose in itself is not thermoplastic, it will not instantly under heat, become tacky. Therefore, if you were to use it in a spotting machine at this speed of over 500 a minute, the spots would not stay put, you could not soften them so they would adhere, and so we did not and cannot use the wet glue.

Now, the addition of these rezyl types or glyptal types which are thermoplastic, in which you can get any degree of thermoplasticity you want, gives its own characteristic to the cellulose with the result that with the proper proportion and the kind of resin, proper kind of cellulose, can form a thermoplastic adhesive which can be used and is used today in the Warth method. Of course, a plasticizer is also used. This is necessary to keep this composition soft and flexible so it will not dry out.

Q. 104. Why not use just the resin alone, why add nitrocellulose?

A. We have tried over many years to use all forms of resins. In the early days it was natural resins, such as Congo, Manila, kauri, in fact, every type of natural gum available. It is impossible to take a natural resin, put it in solution and dry it on a facing strip thin enough so that it will act as a proper adhesive. Where you use a natural gum your adhesive layer is so thick that your entire strength of the adhesive is simply the strength of the gum, and when these dry out they become brittle and

[fol. 112] your spots fall off. Now, with the newer, synthetic resins, such as these polyhydric, polybasic combinations known by the trade name of glyptals or rezyls, there you can get a somewhat thinner coat, yet your coat is too thick to be used in practice and has all the faults of the natural resins, but, peculiarly, the minute you put this in combination with cellulose, which is one of the finest film formers that I know of, you may form a very thin film. In fact, even though the resin and the plasticizers are in the combination, your total film thickness of the nitrocellulose, plus the resin, plus the plasticizer, is no greater than the cellulose alone, and it is well-known in the art the thinner the adhesive film the better the stick, the closer you can put two materials together, the better the adhesive qualities.

Q. 105. And as a spot-adhering material has this nitrocellulose resin combination any advantages over gutta percha, and, if so, just tell us what they are, briefly?

A. It has many advantages. In the first place, gutta percha is very susceptible to weather conditions, that is, humidity and weather. Where, in a large plant, like Crown Cork & Seal, it is necessary in the summer time to put the gutta percha in ice boxes, so it will not melt and flow, it is a decided disadvantage. Nitrocellulose, on the other hand, is not susceptible to humidity and not so susceptible to the weather or to heat—temperature. It is very easy to apply with the proper apparatus, although the apparatus is quite elaborate and expensive.

It has many properties that gutta percha does not have. For example, gutta percha under certain weather conditions [fol. 113] of high humidity will not adhere as well as a nitrocellulose resin adhesive. Gutta percha is what I would call of an oxidizing nature, that is, it is like any paint or any other material that is continually oxidizing. Everybody knows that if you paint a wall the oil is going to continue to oxidize or burn. That happens with gutta percha; with the result that gutta percha will deteriorate with age.

Nitrocellulose resin combinations, as far as my tests show, increase their adhesive powers as they age. In fact, they become stronger. Also, if you took nitrocellulose and tested its adhesive powers against a similar gutta percha stuck spot and placed them on a bottle, that is, crown a bottle, on testing these two adhesive powers, that of the gutta percha against the nitrocellulose resin combination, you will find that the pressure exerted in crowning has

decidedly increased the adhesive powers of the nitrocellulose-resin combination; in fact, it increases over 100 per cent. its initial adhesive strength, whereas it increases the adhesiveness of the gutta percha very little. Again, when you pasteurize the bottle—if you take the adhesive strength of gutta percha against nitrocellulose resin, before placing on the bottle, then crown these caps on the bottle and pasteurize them and test their adhesive powers, you will find that the adhesive powers of the nitrocellulose resin has increased tremendously, whereas the gutta percha has decreased materially.

I have tried this under all conditions, with mineral waters, with beers, I have tried it at 142 degrees, which is pasteurizing temperature, and I have tried it at 190 degrees [fol. 114] grees, and I have tried it under pressure at 240 degrees. Invariably you get the same result, that is, nitrocellulose is by far the better resin, it has better stability, better adhesiveness, I should say.

Q. 106. Will you turn to the Warth patent 1,899,783 in suit, and tell us what that discloses?

A. This patent we can call the Warth paper spot patent. Metal spots or discs for center spotting are not satisfactory for highly acidulated drinks, such as ginger ales.

Q. 107. That is because, I suppose, the acid attacks the metal?

A. The acid will attack the metal and form pin-holes in the metal. This patent describes a cap which can be used, as I have said, for acidulated liquids, such as pale ginger ale, and is the type of cap which has taken the place of the high grade natural cork which was formerly used on this type of beverage. The essential feature—

Q. 108. Why wasn't the composition cork used on this type of beverage?

A. Composition cork as I have said before, is not generally used for high grade beverages which will be stored or not consumed at any great time after bottling, due to the fact that there is quite a tendency to give the beverage a corky taste.

Q. 109. So that the alternative, in the absence of a paper spot, was to use this high grade natural cork with its increased expense, is that right?

A. Yes; in fact, until the advent of this type of crown, high grade natural cork was used exclusively for that purpose.

Q. 110. All right, go ahead.

A. The essentials of this cap, as he described it, are three, an adhesive layer of gutta-percha, also a high gloss paper, [fol. 115] for example, express paper, bleached kraft, third, a glazed surface coating of the paper—on the paper, of a compound which will not impart any taste or odor to the beverage and will resist the action of the beverage. On page 3, line 110, he describes the use of gutta percha and its particular advantages in this type of facing. Also, on page 4—rather, this continues to page 4, line 5, the types and kinds of papers and the reasons for using the same as described on page 3, line 28 to line 92. The glazed surface is described on page 4, lines 111 to 114. By the combination of these elements which Warth describes in his patent, he has overcome the difficulties found in the use of a paper spot.

You will remember the sketch I showed of a crown in position, and I stated that the pressure used was somewhat like 600 pounds to place the cap on the bottle. This means that the facing material must be strong enough to withstand the distortion caused by this 600 pounds pressure on the facing material.

One can readily see from the sketch that if the facing material is weak, it will tear and permit the contents of the bottle to come in contact with the cork liner.

Where you use a metal foil the metal foil is elastic and permits this, but where paper is used, it is essential that the paper be strong enough, as paper has very little elasticity. The paper being in contact with the contents of a bottle must be strong so it won't be weakened, tear, and yield and break. To meet these conditions Warth uses a hard, tough paper, such as kraft or express paper, which is strong enough to stand the pressure and which has a hard, [fol. 116] glossy finish, which aids the paper in making it impervious to the liquid, but as a primary means to prevent the contents of a bottle coming in contact, he uses a water-repellant varnish.

On page 4, line 110, he describes this varnish as being made up of resin, china wood oil and a drier and contains a plasticizer. Of course, the hard finish of the paper provides a secondary line of defense against the effects of the liquid if by any chance a small amount of liquid should get past the varnish.

Also by making it water-resistant, he permits the paper to retain its original strength and also keep the liquid out of contact with the paper, itself, just to avoid taint from the paper itself.

Then finally gutta percha is used as the adhesive, and he points out on page 3, line 125, that gutta percha is not affected by fruit acids, minerals or the like, which may be in the contents of the bottle. He also says on page 3, line 117, that gutta percha in itself is non-absorbent and non-pervious to gasses. These qualities are effective if for any reason the liquid should penetrate the spot. This type of cap with the varnish paper facing has been adopted by the entire trade.

It has superseded entirely the use of high grade natural cork and is the only type, I know of paper center spot cap being used today for this purpose. Practically every crown manufacturer is manufacturing this type.

Q. 111. Will you look at the stipulated caps which are Exhibits 6 and 7 and state whether or not those caps are made in accordance with what you have just been telling us is the disclosure of the Warth patent No. 1,899,783?

A. Both these caps have a varnished paper center spot [fol. 117] disc. Both of them appear to have a gutta percha adhesive in back of the facing.

Q. 112. And assuming that those caps were made with paper like the stipulated Exhibit 12, would you say that that is an express paper, kraft paper? What is it?

A. It looks like kraft with a gutta percha backing.

Q. 113. At any rate, it is a hard, high-finished paper?

A. It is a hard, high-finished paper, with varnished face, gutta percha backing.

Q. 114. And high gloss?

A. With a high gloss.

Q. 115. Now, to your knowledge are the inventions of these six patents here in suit used today by plaintiff in this suit?

A. All six patents are being used, to my knowledge, to the present day at the plant of the Crown Cork & Seal to the extent that the Crown Cork & Seal will make this year well over nine million gross center spot crowns. On the metal foil, where metal foil center spots are used, either gutta percha or the thermoplastic duPont 4620 is used. Where the varnished paper is used gutta percha is used exclusively as adhesive.

Q. 116. Have you any idea what proportion of the center spot crowns made by plaintiff are paper and what are metal, relatively?

A. I don't know the relativity exactly, but I would say there are more metal spots made than paper spots.

Q. 117. And my understanding is of your last answers that plaintiff is using the method as well as the material which is described in these patents?

A. In the manufacture of spot crowns at the Crown Cork & Seal they use a center spot with a thermoplastic adhesive for adhering the spot to the cork. This is the essential of [fol. 118] the McManus patent. And it uses the method of the reissue patent, that is, they have a thermoplastically coated strip, they position it in a punch and over a die and over a crown. They use the punch to place the spot on the cork. They use heat at the time of assembly. They use a further plunger to give it a further—heated plunger—to give it further adherence. They use the rotating dial with plungers to set or make the final stick; in other words, in my opinion, they are using all the essentials of the six patents in suit here.

Q. 118. How long, to your personal knowledge, has that been true?

A. When I entered the employ of the Crown in June, 1930, they were then using all these methods except the use of the nitrocellulose resin adhesive.

Q. 119. How long have you been using the nitrocellulose form of plastic?

A. Nitrocellulose went actively into use about June of 1934. This was due to the fact that it took us over a year to install ovens and apparatus for properly coating the facing material in the quantities which we used. I particularly remember that due to the fact that it was placed right behind my laboratory and adjacent to it.

Cross-examination.

By Mr. Warland:

X Q. 120. You referred to this McManus chart here. I understood your testimony to be McManus covered both metal foil and paper, is that right?

Mr. Scull: I object, your Honor. I did not ask him at any time what any patent covered. I simply asked him what its

[fol. 119] disclosure was. This man is not competent to tell you what the patent covers. He has not been interpreting the scope of any patent.

X Q. 121. Didn't you say or you understood the McManus patent to cover both metal foil and paper?

Mr. Scull: I object, your Honor, I did not ask him.

The Court: Well, he can state that. Objection overruled.

X Q. 122. Didn't you say that?

A. I think I did.

X Q. 123. That McManus covers both metal foil and paper?

A. I would have to check it back.

X Q. 124. Will you please take the McManus patent and check back and show me where it says anything about metal foil.

A. It does not particularly mention metal disc.

X Q. 125. Does it mention anything besides paper, a hard parchmented paper for the center spot?

A. It says, at line 73, page 2, "Disc F may be made of a hard parchment paper or of any other paper so treated as to make it non-absorbent."

X Q. 126. That is the only description you find anywhere in the patent of the material of which the center spot may be made, is that right?

A. So far as I can find now, sir.

X Q. 127. You have described in great detail the purpose of this center spot as protecting the contents of the bottle from the effect of the liquid and also as forming a tight closure. Was McManus the first to do that so far as you know?

A. Just what do you mean by that question, do you mean the first to make a center spot?

[fol. 120] X Q. 128. Yes.

A. I don't think McManus was the first to make a center spot.

X Q. 129. Center spots were old long before McManus, weren't they?

A. I think so.

X Q. 130. And of course the cushion disc and metal shell, those were old long before McManus?

A. Certainly.

X Q. 131. So really all that McManus did was to put a parchment center spot on, is that right?

A. Isn't that what a center spot is to do?

X Q. 132. I am asking you isn't it a fact that what McManus did was to put on a parchment center spot?

A. Yes, a parchment center spot or any other paper material so treated as to make it non-absorbent.

X Q. 133. The only difference between McManus and the prior patents that you have described and the prior manufactures that you have described lies in the fact that McManus put on a parchment center spot?

A. According to his wording I would say that he put on a paper spot.

X Q. 134. "Parchmentized hard paper," just read it.

A. No, I would say—

X Q. 135. Read it, line 73, page 2.

A. It says, "any other paper so treated as to make it non-absorbent."

X Q. 136. He does say parchment?

A. He mentions parchment.

X Q. 137. How long have you been in the crown cap business altogether?

A. Since 1916, August 1st.

X Q. 138. Weren't you connected with concerns that made center spots prior to that?

A. I was not. I was never in the crown business prior to August 1st, 1916.

[fol. 121] X Q. 139. What about this Standard?

A. I stated that in purchasing the Standard Crown Company, which was the successor to the American Cork & Seal I found these patents and machinery to manufacture that type of crown.

X Q. 140. A good many of that type of crown had been made and sold at that time, by the American Cork & Seal Company before you bought it?

A. Very few.

X Q. 141. Didn't you have a conversation with Mr. Gutmann some time ago saying a great many had been sold?

A. I don't recall any such conversation.

X Q. 142. You do remember a conversation with Mr. Gutmann?

A. I had a conversation with Mr. Gutmann.

X Q. 143. What is this adhesive referred to in the McManus patent, is that a thermoplastic?

A. What page, please?

X Q. 144. Page 2, line 75, "by means of a binding medium preferably such as that which is used as a bond for the granules of the composition disc."

A. Where he talks of a binding medium used as a bond for the granules of the composition cork, he is talking about glue or gelatine which was the medium then mostly used for binding cork particles. When he talks about the bond then being used and generally used in the trade for uniting the cork disc to the cork shell he is talking about a heat-fusible medium. The bond then generally used was natural gum such as Manila gum, plus resin in an alcoholic solution, or coated on paper.

X Q. 145. Are you finished?

A. Yes, sir.

X Q. 146. Now, will you please be good enough to answer my question?

A. Yes, sir.

[fol. 122] X Q. 147. Is that material mentioned in the McManus patent as thermoplastic material or is it not?

A. The first is not. The type used as a binder for cork is not thermoplastic.

X Q. 148. How about the material used for putting the center spot on, is that thermoplastic?

A. As I read this patent he could use either type, either the gelatine type which was used to bond the cork particles or the thermoplastic type which was used to fasten the cork disc to the shell.

The Court: Mr. Scull, is this man an expert?

Mr. Scull: Yes, your Honor.

The Court: And he is the only one you are going to call?

Mr. Scull: Yes.

X Q. 149. Perhaps I am not quite clear, but what I want to know is, this material that he refers to as securing the center spot F to the crown cork, is that thermoplastic or not, can't you say yes or no?

A. I cannot answer it the way I know you would like me to. He states two mediums for fastening this spot, either thermoplastic or the gelatine type of glue. One is thermoplastic and one is not.

X Q. 150. As I understand your testimony you are reading McManus's patent to indicate to you that he might or might not employ thermoplastic?

A. So far as the patent says here he can use either type, but he speaks further on of further plasticity in his binding medium.

X Q. 151. Now, you say you went into the center spot business in 1916?

[fol. 123] A. In 1916 the only center spot mechanism I had was that portrayed in making the Bartlett crown.

X Q. 152. What business were you in in 1916?

A. I bought the Standard Crown Company in 1916.

X Q. 153. You must have known of the other manufacturers of center crowns?

A. I had never been in any business prior to the time of buying the Standard Cork.

X Q. 154. At that time weren't there other crown manufacturers in the market besides you?

A. Yes.

X Q. 155. Who were they?

A. The American Cork & Seal, Hutchison, Crown Cork, Ferdinand Gutmann and a few others.

X Q. 156. They were all making center spots, weren't they?

A. So far as I know I don't think any of them.

X Q. 157. Weren't the Crown Cork & Seal making center spots in 1916?

A. I don't know.

X Q. 158. When did you first see a center spot apart from this Bartlett patent?

A. I don't remember any great number of center spots for many years thereafter.

X Q. 159. What do you call many years?

A. I mean by that I had no means of going into other persons' plants except when the proprietor cared to show me the plant. There was only one center spot that I knew of at that time and that was the White Rock.

X Q. 160. And that is what is known as the Nielson?

A. It is made under the Nielson or the Berg patent.

X Q. 161. When did you first hear of center spots?

A. After I bought the Standard Crown Company.

[fol. 124] X Q. 162. That was 1916?

A. 1916.

X Q. 163. Were there any other center spots besides the White Rock?

A. Not that I know of.

X Q. 164. When did you first see any other center spots except the White Rock?

A. I have no recollection.

X Q. 165. You did not look it up at all?

A. I cannot remember when I first heard of another spot, that would be impossible.

X Q. 166. Were you buying or selling spots?

A. We were not manufacturing or selling any spot crowns at that time.

X Q. 167. How long did you stay with the American Cork & Seal—or how long did you stay in the crown business after you bought this patent?

A. Which patent?

X Q. 168. This Standard patent that you have been talking about.

A. That was part of the assets of the Standard Crown Company which I bought on August 1st, 1916.

X Q. 169. What did you do after that?

A. I operated that company until March of 1929.

X Q. 170. Making center spots all the time?

A. No, sir.

X Q. 171. What were you making?

A. Regular crowns, composition and natural cork crowns.

X Q. 172. And you were selling those around to the various users of crowns?

A. Yes.

X Q. 173. And weren't you in a position to see the various center spots that came out?

A. Yes.

X Q. 174. And you saw the first spot when?

A. I saw the White Rock.

X Q. 175. Apart from the White Rock crown.

A. Every other—there seemed to be no great sale of spot crowns until some time later, in 1927 or 1928, when I dis-[fol. 125] covered that Anheuser-Busch was using a center spot crown. I, like all other crown manufacturers, did not know that this was coming on the market until we saw the bottled goods and then we all got busy trying to manufacture them. There was a great need for them but we did not know how to make them.

X Q. 176. Didn't McManus tell you how to make one?

A. I was not interested, in those days, in the McManus patent.

X Q. 177. When did you first hear about that?

A. When I secured the White Rock patents and the machinery, then I became interested in these patents.

X Q. 173. And that was in 1916?

A. Oh, no, sir, that was in 1924.

X Q. 179. What patent did you purchase when you bought the Stewart or White Rock?

A. I did not purchase, I made a deal with Mr. Stewart, Jr., and got control of the use of the patent and machinery for manufacturing this type of crown. The machinery was all moved to my plant in Philadelphia.

X Q. 180. Where was it moved from?

A. Half of the machines were in Wilmington and the others were in Boston, but all these machines came to me from Wilmington and Boston.

X Q. 181. This White Rock cap, as you call it, which consists of a metal center spot flanged in or slotted into the cork, that was made long prior to 1916, wasn't it?

A. As far as I know it was.

X Q. 182. That was made at Millis, Massachusetts, by the United Cork & Seal Company?

A. I think it was.

X Q. 183. Were you connected with that concern at any [fol. 126] time?

A. No, sir, I was connected with no other business, any business until 1916, August 1st. I was a mining engineer.

X Q. 184. Did you ever use parchment for center spots?

A. I have tried them out.

X Q. 185. How did they go?

A. Not very well.

X Q. 186. It did not go well at all, did it?

A. No, sir.

X Q. 187. If somebody said that they tried paper parchment, that is parchment paper with paraffin to cover the cork, and that that would not do because the water disintegrated the paper, would you say that was a correct description of the defects of parchment?

A. That would depend entirely on the type of parchment. In my tests of parchment paper I got various grades of efficiency. One is better than another. What one manu-

facturer might think would do I perhaps might think would not do.

X Q. 188. But you never saw on the market a center spot crown with a parchment center spot, did you?

A. Not to my knowledge.

X Q. 189. Now, how long have you been with the Crown Cork & Seal Company altogether?

A. I entered their employ in June of 1930, and I left them in August of 1934.

X Q. 190. When did you go back?

A. When did I go back?

X Q. 191. Yes.

A. I never have been back.

X Q. 192. You left in June of 1934?

A. Yes, sir—

The Court: August he said.

The Witness: August of 1934.

X Q. 193. You are not in their employ now?

A. I am getting paid for my services here, yes.

[fol. 127] X Q. 194. I mean, you are not connected with their regular organization?

A. I am not, sir.

X Q. 195. You testified in reference to this re-issue patent 19,117.

A. Yes.

X Q. 196. I believe your testimony is that there are three vital elements there and one included the heated plungers, that's right, isn't it—that plunger has to be heated, hasn't it, that cutting plunger?

A. Just what do you mean by that?

X Q. 197. You spoke of this plunger here marked "Second Step" showing a gas heater around it.

The Court: That is referring to exhibit what?

X Q. 198. Exhibit 21. Step down and look at it if you cannot see it from there.

A. I can see it all right, I made it.

X Q. 199. Well, the question that I am asking you is, the cutting punch has to be heated, doesn't it?

A. If you use that particular method of applying heat then you can heat the plunger. There are other methods you can use.

X Q. 200. There are other methods known as cold plungers?

A. Certainly.

X Q. 201. For cutting?

A. Yes.

X Q. 202. What is the difference between that reissue patent No. 19,117 and the patent to Warth 1,967,195 as shown on Exhibit 22; what is the difference in operation?

A. The only difference in operation is that Warth shows a different method of having heat available at the time of placing the disc and center disc on the compression disc.

X Q. 203. You say he has it available, does he use it?

A. He cannot use it until you place the center spot on there.

[fol. 128] X Q. 204. Now, you have described what you called the Cohn method and made a diagram of that. Did you ever see the Cohn method carried out?

A. No, sir.

X Q. 205. As I understand you this drawing that you made and your testimony is based on your conclusion of what the patent shows?

A. Yes, sir.

X Q. 206. You know nothing about the practical operation?

A. I have never been in Mr. Gutmann's plant in years.

X Q. 207. Now, you said the White Rock Company purchased its natural cork from the Crown Cork & Seal Company?

A. Yes.

X Q. 208. How do you know that?

A. When I was working there they were purchasing great quantities of completed crowns and this high grade natural cork from the Crown Cork & Seal and I presume they are still doing it. The last one that I opened up had their mark on it.

X Q. 209. You testified as to two patents to Warth 1,899,782 and 1,899,783. The first one is for a strip of material coated with gutta percha and the other one is for a cap having a glazed center spot. Just what is the difference between the material shown in these two patents, and the McManus patent—I mean of course as refers to center spots only.

A. Patent No. 782 describes a method of placing gutta percha—

X Q. 210. I think you have the wrong one there.

A. No. 782.

X Q. 211. All right, go ahead.

A. It describes a method of placing gutta percha on the facing material.

X Q. 212. Now, I asked you what was the difference between that and the McManus patent.

[fol. 129] A. I am sorry, but I don't quite get that question.

X Q. 213. Well, patent No. 782 describes and claims a strip material. For instance, one of the claims in suit—

Mr. Scull: I object, your Honor.

X Q. 214. Doesn't 782 show a strip of laminated material coated with gutta percha?

A. Shows a strip of facing material coated with gutta percha.

X Q. 215. Shows a strip of high gloss, hard-finished paper coated with gutta percha, doesn't it?

A. 782? He mentions both, paper, high gloss paper and metal foil.

X Q. 216. What is the difference between McManus' patent and a center spot made out of high gloss varnished paper?

A. McManus discloses any suitable paper so treated as to make it non-absorbent. This high gloss paper has that quality. He describes two methods of adhering the disc to the resilient liner, one gelatin type, the other thermoplastic. This patent describes a disc with thermoplastic gutta percha.

X Q. 217. I am talking about the paper. What is the difference in the paper, the distinction between McManus and these two Warth patents?

A. McManus says any suitable paper that is non-absorbent and flexible enough; he does not say anything about a varnish coating. He does not describe a particular type of paper such as described in this Warth patent. The only paper he mentions is parchment.

X Q. 218. As I recall your testimony a few minutes ago, didn't you say it was necessary in a great many types of [fol. 130] beverages to have a hard finish, high gloss varnished paper for a center spot?

A. I did, sir.

X Q. 219. And would McManus be able to meet that requirement, or wouldn't he?

A. If his paper—and he said any suitable paper—had these qualities, then it would be all right.

X Q. 220. I am not quite clear as to just what business you were in prior to the time you went to the Crown Cork & Seal Company. That was when, in 1930?

A. I was in the employ of the Bond Manufacturing Company in Wilmington, Delaware. They are a manufacturer of crowns and cork products.

X Q. 221. What else was Bond making at that time?

A. Collapsible tubes for tooth paste, and so forth.

X Q. 222. Weren't they making center spots?

A. Not at the time I was in their employ.

X Q. 223. You left them in 1930?

A. Left them in 1930.

X Q. 224. You were never in business for yourself then after you gave up this Bartlett patent to Crown?

A. I have never been in business for myself since March, 1929, when I sold the assets of the Standard Crown Company.

X Q. 225. What were you making while you were with the Crown of Stand Company?

A. The Standard Crown Company, you mean?

X Q. 226. Standard Crown Company.

A. I was making composition crowns, natural cork disc crowns, and the White Rock type of center spot crowns.

X Q. 227. Nobody ever accused you of infringing McManus' patent or any other patent while you were there in business for yourself?

A. No, sir.

[fol. 131] X Q. 228. You spoke a moment ago—you mentioned in your testimony, in discussing these various patents, steps that were well-known in the art. Just what did you mean by that?

A. Will you repeat that?

(Reporter repeated last question.)

A. Every crown manufacturer certainly knew how to assemble a crown, that is, place the cork disc and adhere it to the metal shell. Every crown manufacturer knew how to use multiple die processes so as to punch out the shell. Every crown manufacturer was familiar with the coating

or lithographic processes for placing a sanitary lacquer on one side and a necessary decoration on the other. Those are well known steps in the art, together with the machines for doing these steps, which were well-known in the art.

X Q. 229. By the art, approximately how many manufacturers would you say were engaged in that line of business?

A. When?

X Q. 230. At the time you mentioned.

A. In 1916?

X Q. 231. I did not say 1916. You referred in your direct testimony to various steps well-known in the art. What time were you referring to?

A. I was referring to the time of the McManus application in 1915.

X Q. 232. That was all well known in the art at that time?

A. Yes, sir, those steps.

X Q. 233. They all knew about the steps of heating and pressure, didn't they?

A. I imagine you refer to the method of adhering the cork disc to the shell.

[fol. 132] X Q. 234. That was concededly well known?

A. It was well known, but there were many of us didn't know how to do it properly.

X Q. 235. Did McManus know how to do it, as far as you know?

A. At when? 1915?

X Q. 236. Yes.

A. As far as I know, when I entered the art in 1916, the method of using gum copal, resin combinations in solution or on a paper, were well-known and established in the art.

X Q. 237. How about putting the center spots on, was that well known?

A. It was not known, sir.

X Q. 238. That is, you didn't know it?

A. I didn't know.

X Q. 239. Do you know how McManus secured his center spots in his patent?

A. What do you mean by—how would I know it, by reading the patent or by visualizing it?

X Q. 240. I am asking you if you knew. Do you or do you not?

A. I was in his factory later on and I saw certain methods of making spot crowns.

X Q. 241. Approximately what date was that?

A. I cannot give you the year or the exact date. I don't remember. There was no reason for me to remember.

X Q. 242. Was it while you were in this business of selling center spot crowns like the Bartlett patent?

A. It was prior to that, I would say around 1922 or 1923 or earlier, before I got the White Rock.

X Q. 243. What kind of center spot was he putting on that?

A. He was using, as I remember it, a gummed adhesive and wetting the disc.

X Q. 244. What sort of disc was he using?

A. Composition cork disc.

[fol. 133] X Q. 245. What sort of center spot was he using?

A. Metallic on paper with gum backing.

X Q. 246. How was that fed into the machine?

A. By strip feeding mechanism.

X Q. 247. You mean the metallic metal was coated first with the gum and then fed through—

A. He made a laminated material consisting of metallic foil, paper, some other composition, and a gummed backing.

X Q. 248. All right. How was that material secured to the crown cork?

A. It was fed into a cold punch. The disc, where it reached the position where the punch cut the disc out of the strip material, was wetted or dampened by a wet buffer which made the adhesive on the back of the strip material, when it was placed on the composition cork disc, gummy, just exactly like a postage stamp.

X Q. 249. Did he have any heat anywhere, either on the—

A. He had no heat on it, to my knowledge.

X Q. 250. Either on the crown cork or the center spot?

A. Not that I know of.

X Q. 251. Just a cold adhesion?

A. Just a cold adhesion, as far as I know or remember.

X Q. 252. Did you see any of those on sale at any time?

A. I did not, sir.

X Q. 253. Do you know anything about—coming back once more to the Cohn patent, you speak of pressure. You

do not know anything about how much pressure is applied in the various steps of the method there?

A. I have never seen that machine in operation.

X Q. 254. Referring to your discussion of the patent to Warth, 1,967,195, as I recall your testimony, you spoke of a cool plunger. Can you point out on that drawing which [fol. 134] is the cool plunger?

A. The last punch, where it is marked fifth step.

X Q. 255. That is the only cold plunger shown and described in the Warth patent 1,967,195?

A. I think, as I read the patent, that he shows you can use either preheat on the disc itself or a heated plunger also.

X Q. 256. Never mind how you read the paper. You were with the Crown Cork & Seal Company from 1930 until 1934. How did they use it there?

A. The Crown Cork & Seal uses a heated—used at that time a heated plunger which heated the cork disc prior to the punching operation.

X Q. 257. How about the cutting plunger that Crown Cork & Seal used? Was that heated or cold, the one that cut the spots out?

A. The cutting plunger on a running machine is never cold. If you ask me, it always gets heated.

X Q. 258. Of course, we all know that, but was there any additional heat furnished to this one?

A. No, sir.

X Q. 259. Just what was your position while you were with the Crown Cork & Seal Company?

A. I was in charge of the research and development laboratory.

X Q. 260. You did not have anything to do with the practical manufacturing of these caps, did you?

A. To some extent. My job was to work on anything which I thought could be improved in the manufacturing operation of the Crown Cork & Seal, and I had one of these spotting machines in my laboratory and was continually experimenting with the same.

X Q. 261. This speed you spoke of, what was it, 500 a minute?

A. Over 500 a minute, sir.

[fol. 135] X Q. 262. That means they are spotted at the rate of 500 a minute, isn't that right?

A. Yes, sir.

X Q. 263. That is just putting the spotting cap on?

A. Yes.

X Q. 264. That does not include putting the cork in the shell?

A. No, sir.

X Q. 265. And the various other steps?

A. No, sir, although we assemble our crowns at that speed also.

X Q. 266. That is in a different—

A. Yes, in a different machine.

The Court: How are they fed, right from one machine to the other?

The Witness: No, we have a large hopper and each machine just handles one row of crowns.

X Q. 267. Now, in discussing this 4620 adhesive, as I recall your testimony, you said something about the amount of pressure in pasteurizing; am I right in that? Didn't you say there was a certain amount of pressure used in pasteurizing?

A. I said that in using a pasteurizing temperature, which is normally 142 degrees Fahrenheit, I tested the crowns under this condition and at around 190, and under sterilization temperature of 240 degrees, which requires pressure.

X Q. 268. Did you see anything to that effect in any of the advertisements that the defendant Gutmann & Company put out about their crowns?

A. I haven't read Mr. Gutmann's advertisements.

X Q. 269. You don't know anything about that at all?

A. I am not interested in sales.

[fol. 136] X Q. 270. I understand you to say that this nitrocellulose adhesive is very much superior to gutta percha. That is correct, isn't it?

A. For metallic foils.

X Q. 271. It isn't so good on paper foils?

A. It isn't so good on that, on varnished paper.

X Q. 272. Do you know why the Crown Cork & Seal Company did not adopt that earlier if it is so much better?

A. We tried to adopt it in 1933, but you must remember we—I use the word “we”—were using a tremendous quantity, making over nine million gross per year, and if we wanted to put that out at that time, we had to have equipment, large equipment. We started in, early in 1933, I think it was sometime in January, as I remember it, and

we saw Waldron Company over here in New Jersey and we ordered a long coating oven that cost over \$10,000. We had to buy winding machines, we had to buy stripping machines, learn how to do it properly, to cut this coated foil into narrow strips, as it is coated in very wide strips. We cannot coat just one narrow strip in this huge plant. We have to put out enough so that we can fill the demand. So it always takes longer in a huge plant such as Crown Cork & Seal, to put anything across, than it does in a smaller plant. That is obvious, to my mind.

X Q. 273. Then, I understand you to say the first attempt to use this was in January, 1933, is that right?

A. That is the first time that I knew about it from the other department. I have been working for years on the use of cellulose and other adhesives, I have spent a great many years at it.

X Q. 274. And you could not find anything until 1933, [fol. 137] when you found this cellulose from the Du Pont?

A. What do you mean, what I found?

X Q. 275. Well, the Crown Cork & Seal.

A. As far as the Crown Cork & Seal, I reported to Mr. McManus earlier than that that I had perfected or thought I had satisfactory nitrocellulose adhesive, resin adhesive, much earlier than that.

X Q. 276. You discussed that Warth reissue 19,117. Where did you find any cooling under pressure described there?

A. Line 98, page 3, "The assembled unit is then permitted to cool and the cooling may advantageously be coupled with pressure, for example, by a plunger."

Mr. Warland: I think that is all.

Re-direct examination.

By Mr. Scull:

R. D. Q. 277. Just one question. You spoke about the use in the Crown Cork plant of this heating in accordance with the Warth method patent 1,967,195. I think you said that the combined punch and plunger does get warm.

A. Yes, sir.

R. D. Q. 278. Where does that come from, where does that heat come from?

A. You have a series of heated crowns running at the rate of 500 a minute under the plunger. They tend to heat

up the punching disc. The radiation from that heat, and the after heat, tend to heat this plunger. I have made innumerable tests of the temperature of these plungers where the punch is not—I mean of the punch, where it isn't heated, and I found, for example—

The Court: That is not intentionally.

[fol. 138]. The Witness: It was not intentionally heated. And I found, for example, on the Johnson machine it will run as high as 140 degrees Fahrenheit. I took this temperature with a Brown potentiometer.

R. D. Q. 279. Supposing there had been no heat on the caps, and that the only heat was from a punch or plunger heated to 140 degrees, would that be enough to make the gutta percha tacky?

A. I don't think 140 degrees alone would give you sufficient heat to keep the spot set. In other words, so it wouldn't move, so that the center spot would not move in the movement of the crown to the next stop position.

R. D. Q. 280. Supposing I put a device on that punch that will keep it absolutely cold, and when I say cold, well, let us take room temperature, 70, how would that work, assuming now that the caps are preheated, would that have any effect, deleterious or otherwise?

A. It would have only this effect, that you would require more heat prior to the crown reaching the punch than if the punch had some heat.

R. D. Q. 281. In other words, by having the punch at about 140 simply means that you do not have to put quite so much heat into the crowns themselves?

A. Yes.

R. D. Q. 282. In other words, that the sticking is due to the heat which flows both from the punch and from the cork disc?

A. Absolutely. And also you are up against a very practical condition: You do not want to heat this cork disc any more than you have to because should this temperature rise, say, only 20 degrees in the prior heat zone, you will blacken the cork and those crowns cannot be sold.

[fol. 139] R. D. Q. 283. Then, as I understand, by having the punch itself heated by this radiation you can drop the amount of heat and therefore the temperature which you put into the crown, and avoid that difficulty, is that it?

A. Absolutely.

Recross-examination.

By Mr. Warland:

R. X Q. 284. Will you tell us the difference in operation, difference of method between 1,967,195 and the reissue 19,117?

A. 195?

R. X Q. 285. That is this one right here. (Indicating.)

A. In the reissue patent Warth shows in his drawing a heated punch. In the 195 patent he shows a method of heating the crowns by directly placing heat in the cork discs themselves prior to reaching this punch. That is the essential difference between the two patents.

(Witness excused.)

FREDERICK ERWIN FUSTING, called as a witness on behalf of the plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. Darby:

Q. 1. You are vice-president of the Crown Cork & Seal Company, the plaintiff in this case?

A. Yes, sir.

Q. 2. Where do you reside?

A. Baltimore.

Q. 3. What is your address, please?

A. No. 5105 Falls Road Terrace.

Q. 4. Will you please state the relation of the plaintiff's [fol. 140] company with respect to the former companies which it succeeded in business?

A. The plaintiff company was formed through the consolidation of the New Process Cork Company and the N. Y. Improvement Patents Corporation. The plaintiff company thereafter acquired the assets of the Crown Cork & Seal Company of Baltimore and the net effect is that all of the assets of the New Process Cork Company and the Crown Cork & Seal Company of Baltimore became the property of the plaintiff company.

Q. 5. Please state whether this instrument which I hand you shows the consolidation of the New Process Cork Company which I understand was a New York corporation

and the New York Improvement Patents Corporation, to form the plaintiff company?

A. This is a certified copy of a certificate of consolidation forming the Crown Cork & Seal Company, Inc..

Q. 6. And how long have you been employed by the plaintiff company and its predecessors?

A. A little over 31 years.

Q. 7. State whether or not part of your duty has been that you have had charge of the patent records of the company?

A. I have had charge of the patent records substantially since the formation of the plaintiff company.

Q. 8. Does the same apply to the Crown production records?

A. I have had charge of the Crown production records of the plaintiff company and its predecessor running back through 1919.

Q. 9. And through that period you are generally familiar with what those records show?

A. Yes.

Q. 10. Now, referring to the McManus patent No. 1, [fol. 141] 339,066, in suit, can you identify the three instruments which I now hand you?

A. I can.

Q. 11. Please state what they are.

A. The first is a license from the Cem Securities Corporation to the New Process Cork Company. The next is an assignment from Charles E. McManus to the Cem Securities Corporation. The next is an assignment from the Cem Securities Corporation to the Crown Cork & Seal Company, Inc.

Q. 12. And each of those instruments refers to and covers among others the McManus patent in suit, does it not?

A. What is that number?

Q. 13. No. 1,339,066.

A. Yes.

Mr. Darby: I now offer in evidence the first instrument, the license from the Cem Corporation to the New Process.

(Marked Plaintiff's Exhibit 25 in evidence.)

Mr. Darby: I also offer in evidence the second instrument, the assignment from McManus to Cem.

(Marked Plaintiff's Exhibit 26 in evidence.)

Mr. Darby: I now offer in evidence the third instrument, the assignment from Cem to Crown.

(Marked Plaintiff's Exhibit 27 in evidence.)

It is Stipulated by and between counsel for the respective parties hereto that photostatic copies may be offered of the above in lieu of the originals.

Q. 14. Now, referring to the third instrument, Exhibit 27 and more particularly to the last paragraph of the same, [fol. 142] which excepts from the assignment an exclusive license to the New Process Cork Company theretofore outstanding and states that the same "heretofore been acquired" by plaintiff. Have you in your records any instrument formally transferring this exclusive license under the McManus patent in question, to the plaintiff.

A. I have made a search but failed to find where there is any instrument specifically or formally transferring this license as such. Based on my examination it is my understanding that this license, being among the assets of the New Process Cork Company, formally became the property of the defendant through the certificate of consolidation—

Q. 15. You mean of the plaintiff?

A. Oh, yes, excuse me, of the plaintiff, through the certificate of consolidation which is offered in evidence.

Q. 16. In other words there was no written transfer of the exclusive license, as such, but it went over to the plaintiff as part of the general assets of the New Process Company?

A. That is right.

Q. 17. Are you familiar with the types of paper spot crowns manufactured by the plaintiff and the kind of adhesive used for uniting the paper spot to the cork disc?

A. I am.

Q. 18. Will you please state what your knowledge is so far as this paper center spot crown is concerned?

A. The paper spot crowns, as manufactured by the plaintiff, consist of a paper having a coating of varnish on one side, and commonly sold by us as glazed paper spots, having a coating of varnish on one side and adhere to the cork disc

through the medium—with an adhesive of gutta percha. [fol. 143] The paper is commonly known as express paper. We then make another type of paper spot which we sell as the Rao spot which I understand is made of a bleached kraft paper varnished on one side and adhering to the cork disc through the means of gutta percha adhesive.

Q. 19. Can you state whether or not two types of caps in this box which I hand you represent the two types of paper spot caps, namely the so-called Rao and the glazed, which are manufactured by the plaintiff, and have been?

A. They do.

Q. 20. In other words, the light colored paper is the so-called Rao or bleached spot and the dark is the express paper spot, is that right?

A. Right.

Mr. Darby: I offer in evidence the box of caps identified by the witness.

(Marked Plaintiff's Exhibit 28 in evidence.)

Q. 21. Do you know whether or not the plaintiff has made any paper center spot crowns with adhesive other than gutta percha, for uniting the spot to the cork disc?

A. We have not.

Q. 22. Now, referring to these caps in Exhibit 28, these are undecorated caps I take it, and I understand that a great deal of the production is decorated in many colors, is that correct?

A. That is correct.

Q. 23. Have you prepared an available list showing the production, only by the plaintiff, of paper center spot crowns from 1928 until 1934?

A. I have.

[fol. 144] Q. 24. I show you this paper, is this the record?

A. Yes, this is it.

Q. 25. Will you please state in a general way what this record shows?

A. This is a record of sales—

The Court: Why not offer it in evidence and save time?

Mr. Warland: I have no objection, your Honor.

Mr. Darby: I offer this paper now being read by the witness in evidence.

(Marked Plaintiff's Exhibit 29 in evidence.)

The Court: That is his testimony in diagrammatic form, that is all. That is the only purpose for which it is received.

Mr. Warland: Yes, your Honor.

Q. 26. Referring to the Exhibit 29 is there any explanation for the apparent decline in the last two years?

A. The decline in sales in 1933 and 1934 as compared with 1930 when the sales had reached a peak of approximately two million, one hundred thousand gross, we attribute in part, to sales by competitors.

Q. 27. Now, in the column under soft drink, those figures represent the total soft drink crowns produced and the last percentage figure indicates the percentage each year of paper spot, to the total soft drink crowns?

A. The total soft drink crowns by the plaintiff only, that is correct.

Q. 28. Do you know what the principal purchasers of these paper spot crowns used prior to 1928?

A. They used the natural cork discs.

[fol. 145] Q. 29. Can you name some of the principal users of these natural cork disc crowns who turned exclusively to this paper spot crown?

A. Yes, Cliquot Ginger Ale people, the Canada Dry Ginger Ale, James Vernor & Company of Detroit, and the Gosman Ginger Ale Company of Baltimore.

Q. 30. Is the action of these companies typical of other large companies throughout the United States?

A. Yes, the action of those four is typical of most companies embodying ginger ales and such types of beverages. They follow closely the leadership of those companies that I have named, and adopted paper spot crowns.

Q. 31. Now, referring to this list which I hand you, does this indicate the action of one or more typical purchasers, the names of which you do not wish to disclose for trade reasons?

A. Yes. This record indicates from 1925 to 1927 inclusive these customers were using from 500,000 up to over 800,000 gross a year of the natural cork disc crowns. Commencing with the year 1928 they used 944,000 natural cork and 36,000 paper spots. By 1930 their usage or purchase from the plaintiff of natural cork disc crowns had dropped from approximately 950,000 in 1928 to but 50,000 in 1930, whereas during the same period their purchase of paper spot crowns increased from 36,000 gross to 1,125,000 gross.

Mr. Darby: I offer in evidence the list just referred to by the witness.

(Marked Plaintiff's Exhibit 30 in evidence.)

Q. 32. Do you know what if any savings were effected by [fol. 146] these companies in acquiring paper spot crowns instead of the natural cork crowns which they previously used?

A. The-re savings were from three to six cents a gross.

Q. 33. And were these savings typical of other customers who did likewise?

A. They were typical. The savings however were not always the same, it depended on the relationship of price as between the paper spot and the natural cork at the time that they adopted the paper spot and it depended also on the grade of natural cork crowns that they had been using.

Q. 34. Now, referring to natural cork crowns are you familiar with the experience of the Crown Cork & Seal Company users generally of these natural cork crowns, prior to the introduction of these paper spots?

A. I am.

Q. 35. State in a general way the extent of the business of the plaintiff in natural cork crowns prior to 1928. I hand you a list that you prepared for me showing the production in natural cork crowns from the year 1923 on.

A. This statement shows from 1923 to 1927, inclusive. We sold natural cork disc crowns, averaging four million gross a year. Commencing with the year 1928, when the paper spot crown was introduced we sold a total of approximately 61,000 gross. By 1930 these sales of paper spot crowns had increased to approximately 2,100,000 gross, whereas the sales of natural cork disc crowns had fallen to but 1,220,000 gross.

Mr. Darby: I offer in evidence the list referred to by the witness.

(Marked Plaintiff's Exhibit 31 in evidence.)

[fol. 147] Q. 36. Is this list which I now hand you a more complete statement from 1917 to date, on natural cork crowns?

A. Yes, this is a statement of sales of natural cork crowns only which shows that in 1917, our sales of natural cork crowns amounted to over 17,000,000 gross. On down to 1920,

12,000,000 gross and from then on until about 1927 an average of about 4,000,000 gross. The sales in 1934 were less than 1,000,000 gross.

Mr. Darby: I offer the list just referred to by the witness in evidence.

(Marked Plaintiff's Exhibit 32 in evidence.)

Q. 37. Are you familiar in a general way with the relationship of plaintiff's manufacture of natural cork crowns from 1917 to 1930 to the total industry's production? What percentage would plaintiff's production constitute?

A. I would say between 85 and 90 per cent probably.

Q. 38. Of the total industry's production?

A. Yes.

Q. 39. Of natural cork disc crowns?

A. Natural cork disc crowns, yes, sir.

Q. 40. Will you please state what has been the experience of the plaintiff so far as you personally know with reference to the satisfaction which these natural cork crowns had been giving customers?

A. The natural cork discs of course being made from cork which is one of nature's products were always subject to natural imperfections. Our customers were always having trouble with them and we were always receiving complaints as to the quality of natural cork crowns. In [fol. 148] 1925 I personally made a trip to Spain and Portugal for the purpose of trying to improve the quality of natural cork discs that we were receiving.

Q. 41. I believe you said you had a plant in Spain and Portugal.

A. We did have a plant in Spain and Portugal and also I went to try and overcome the terrific losses which these plants were sustaining. I took with me at that time a man who was qualified as an expert on the quality of natural cork discs. He remained there for a year and he did not release any shipment of discs until they had been previously inspected.

Q. 42. As I understand your testimony these natural cork crowns have been a constant source of grief to manufacturers?

A. Yes.

Q. 43. What had been the difficulties with them that were causing these troubles?

A. The difficulties commonly experienced in the use of natural cork discs was the cork taste imparted to the beverage and leakage due to imperfections in the natural cork by the natural pores in the cork or what they call knots happening to strike at the sealing rim of the bottle and also cork dust which flecks out of the natural holes in the cork. Also leakage caused by brittleness—in the crowning operation the brittleness would cause leakage, and generally there has been a constant source of complaint there always.

Q. 44. How long do these troubles date back?

A. These troubles dated back from the time that I first went with the company and that is 1903.

Q. 45. Was there a demand on the part of the manufacturers and customers using them for something to take their place?

A. There was a constant demand for something that would replace them that would be an improvement.

[fol. 149] Q. 46. Would the composition disc do that?

A. It met part of that situation but not all.

Q. 47. In other words there was quite a field where the composition disc would not fill?

A. Exactly. I think that is illustrated by the tremendous swing over to the spots as referred to.

Q. 48. How serious were these defects to the Crown Cork & Seal, what did they mean in dollars and cents?

A. Well, on one occasion we paid a claim to the Gosman Ginger Ale Company of over \$6400 for crowns which represented a sale to the Gosman Company of but \$270. On numerous occasions we had to take back large quantities of crowns simply because the customer had complained of the quality and complained of the appearance, or in some way objected to them.

Brooklyn, N. Y., November 7, 1935.

Met pursuant to recess at 10:30 a. m.; present as before.

FREDERICK ERWIN FUSTING, resumed:

Direct examination continued.

By Mr. Darby:

Q. 49. When the Court recessed yesterday you were telling us of complaints regarding the use of natural cork crowns.

A. Yes.

Q. 50. Now, were these complaints unusual or were they a common thing in your experience with the plaintiff company?

A. In my experience the complaints with the use of natural cork disc crowns has been something that has been [fol. 150] going on throughout my entire period with the company. I can recall particularly, I think it was in the Fall of 1926, we were required to take back some four carloads of crowns from the Anheuser-Busch Company and place aluminum spots on them, which incidentally we had to do without cost to the Anheuser-Busch Company in order to satisfy the complaint.

The natural cork disc crown, while the most expensive crown which we sold, was also the crown that caused more trouble both to us as a manufacturer and also to the user.

Q. 51. You testified yesterday that certain large customers at the particular time that they changed from the use of natural cork crowns to the paper spot crowns, such as Plaintiff's Exhibit 28, effected savings of from 3 to 6 cents a gross at that time.

A. Yes.

Q. 52. Now, can you give the Court some idea of what that saving would mean today for example if they had to use the same grade of natural cork crowns instead of the paper spot crowns of Plaintiff's Exhibit 28?

A. If customers such as are users—such as Cliquot Club and Canada Dry and like companies using the highest grade natural cork discs used natural cork discs crowns today in lieu of spot crowns there would be an increased cost of approximately 14 cents a gross over and above the price of the spot crown.

Q. 53. And would that apply to all grades of natural cork crowns; let us take the greatest average cost in using the highest grade, take a company such as Cliquot Club and Canada Dry. In that case would it be more?

A. In that case it would probably run a little higher.
[fol. 151] Q. 54. Now, as I understand it, until the plaintiff introduced the paper spot cap of Plaintiff's Exhibit 28, the plaintiff, and in so far as you know the rest of the industry, had nothing acceptable to offer the large manufacturers of ginger ale, such as Cliquot Club and Canada Dry and manufacturers of other acidulated beverages but this natural cork crown, is that correct?

A. That is correct.

Q. 55. And it was not until, so far as you know the paper spot crown of Exhibit 28 was offered that they found a substitute for these expensive and troublesome natural cork crowns?

A. So far as I know, yes.

Q. 56. Are you familiar with the types of paper spot crowns made by manufacturers other than the plaintiff?

A. In a general way, yes.

Q. 57. Will you state what your knowledge is as to manufacture by others of the same paper spot crowns as Plaintiff's Exhibit 28?

A. Prior to the introduction of paper spot crowns by us in 1928 there were no other crowns of this type on the market so far as I know. Upon introduction of the paper spot crown by us and its rapid acceptance by the trade, practically all of the larger crown manufacturers adopted the identical type crown.

Q. 58. Can you identify this list which I hand you as a list which you have prepared showing the manufacture by the plaintiff of all types of spot crowns, both metal foil and paper spot?

A. I can.

Mr. Darby: I offer this list identified by the witness in evidence.

(Marked Plaintiff's Exhibit 33 in evidence.)

[fol. 152] Q. 59. You testified with reference to the larger soft drink bottlers turning to paper spot crowns in lieu of natural cork crowns.

A. Yes.

Q. 60. Can you state the trend of prior users of natural cork crowns in connection with other beverages after aluminum spot crowns were introduced by the plaintiff?

A. Prior to 1925 we were not equipped to manufacture spot crowns in a large way. Toward the end of 1925 or

possibly 1926 we adopted improved methods of manufacture and following this the users of cereal beverages rapidly adopted the use of aluminum spot crowns in lieu of natural cork crowns.

Q. 61. Can you mention one or more of the typical users?

A. I would mention the Anheuser-Busch Company as being indicative.

Q. 62. When you referred to 1925 or 1926, I suppose you were speaking roughly from your recollection as to the dates?

A. That is right.

Q. 63. Can you identify the list that I hand you as a record of typical users of metal foil spot crowns who adopted the same in lieu of their former use of natural cork crowns?

A. I can.

Mr. Darby: I offer in evidence the list identified by the witness.

(Marked Plaintiff's Exhibit 34 in evidence.)

Q. 64. Can you explain what accounts in any way for the sudden increase in production in 1933 and apparent decline in 1934?

A. This record shows that prior to 1927 these several users used approximately 600,000 gross of natural cork crowns per annum. Commencing with 1927 and running on down to 1933, this picture changed in the year 1933 [fol. 153] they used approximately 5,000 gross of natural cork crowns and 1,423,000 gross of aluminum spot crowns.

The decline between 1933 and 1934, the latter year showing slightly over 700,000 gross, was due in part to the excessive demand immediately following the legalization of beer, and in part to the manufacture by others of the same type of crown in the year 1934.

Mr. Darby: That is all.

Cross-examination.

By Mr. Warland:

X Q. 65. As I recall your testimony yesterday you said that part of the falling off of sales was due to competitors in the years 1931, 1932, 1933 and 1934, is that right?

A. You are speaking now of falling off of what?

X Q. 66. Well, take your natural cork non-spot that is Exhibit 32.

A. Exhibit 32 is a statement of sales of natural cork crowns and doesn't give any other figures.

X Q. 67. Well, take Exhibit 30.

A. I would say that that would apply more particularly commencing, say, with the year 1932 or thereabouts. I couldn't say precisely what period that began.

X Q. 66. Well, it is a fact, is it not, that from the years 1930 to say the middle of 1933 there was a course of general depression and reduction in volume of business of all kinds all over the country?

A. That is the reason I have stated that I thought that change that I referred to applied more particularly along in 1932. We had then felt the principal effect of the depressed demand.

[fol. 154] X Q. 69. And that falling off of sales that year, that was due, so far as you know, as much to the general depression as it was to sales by competitors, wasn't it?

A. Which year is that?

X Q. 70. 1931, 1932.

A. In 1932 I think that the reduction was due in part to the activities of our competitors in the sale of paper spot crowns.

X Q. 71. Who were your competitors in 1932?

A. The defendant is one, Armstrong Cork Company, Mondette Cork Corporation, William H. Hutchison & Son, Bamberger & Kraus, Bond Manufacturing Company. I think that is illustrated, I do not think that I could name them all.

X Q. 72. In this license agreement referred to in your pleadings in this case and in answer to our interrogatories, you gave, as I recall it, fifteen concerns who had signed this license agreement.

A. I think there were approximately that many, yes.

X Q. 73. They were all competitors of yours prior to the signing of that license agreement, is that right?

A. Prior to the signing of the agreement?

X Q. 74. Yes.

A. Yes.

X Q. 75. How about after signing that agreement, what happened to the sales then, did they increase or decrease?

A. The year 1934, according to this statement, shows a decrease as compared with 1933. The sales of paper spot

crowns, according to our analysis, has fallen since the legalization of beer since our experience has been that there has been a smaller sale of ginger ale, particularly the ginger ales that used a paper spot crown.

X Q. 76. And of course composition cork is cheaper than natural cork, isn't it?

A. It is.

[fol. 155] X Q. 77. And a composition cork crown with a center spot of either foil or glazed paper would be cheaper than a natural cork crown, would it not?

A. It would.

X Q. 78. Quite appreciably cheaper?

A. Depending, of course, on the grade of natural cork. You can get natural cork so poor that, as the expression goes, it will just about keep flies out of bottles.

X Q. 79. You are referring of course to a natural cork of a quality suitable for bottling?

A. Yes.

X Q. 80. But even with the cheapest grade of suitable natural cork, a composition cork with a center spot is cheaper than natural cork would be, wouldn't it?

A. Well, of course the word "suitable" covers a rather broad area.

X Q. 81. Such as you use in the trade for capping purposes.

A. What we would sell as our standard natural cork would be more expensive than a paper spot crown or an aluminum spot crown.

X Q. 82. That is, to make the record perfectly clear, put on a composition cork disc, is that right?

A. Yes, aluminum spots or paper spots applied to composition cork discs, yes.

X Q. 83. Now, you spoke of the sale or transaction you had with the Anheuser-Busch Company in 1928 in which you lost considerable money and had to put center spots on.

A. Yes.

X Q. 84. Is it not a fact that the natural cork used on those Anheuser-Busch crowns was mouldy and in a bad condition?

A. My recollection of that transaction was not that the discs were mouldy but on the contrary that certain of the discs imparted a taste to the beverage. That is a condition that seems inherent in natural cork and one that has been

[fol. 156] diagnosed in various ways but nobody seems to have been able to determine just what causes it.

X Q. 85. Would that apply to the best grade of natural cork, is there a taste to the cork?

A. Irrespective of grade. Mind you, in the manufacture of natural cork discs you will produce a certain number of high grade discs and a certain number of low grade discs out of the same sheet of wood so if the low grade imparted a taste also would the high grade.

X Q. 86. Is that Anheuser-Busch the only one you have had any trouble with?

A. No, we had trouble with any number of customers, the Manitow Mineral Spring Company, the John Graff Company and I mentioned yesterday the Gosman Ginger Ale Company and I think the Fox Head Springs Company. I cannot recall them all because I do not handle the complaints, so I do not know specifically any great number.

X Q. 87. These various instances you have just referred to, all those have been before 1926 or subsequent to 1926?

A. Those conditions that I am speaking of happened in the case of Anheuser-Busch—I think it was in the year 1926. In the case of the Gosman Ginger Ale Company—I don't recall exactly what year that was, but I think it was in the year 1924. There has been a continuous source of I might say argument between the customer and ourselves as the supplier over the question of the quality of natural cork discs throughout the entire period that I have been with the company.

X Q. 88. And that would be running back as far as 1903, I think you said yesterday.

A. Yes, that is correct.

[fol. 157] X Q. 89. And you have always had that trouble with the quality of cork?

A. We have had troubles of one kind or another.

X Q. 90. Due to imperfections in the cork?

A. Due to imperfections in the cork and the fact that the cork imparts a corky taste at times and due to the brittleness of the cork which causes leakage upon application of the crown to the bottle and also the flaking out of cork dust from natural holes in the cork and also what is known — pin-hole trouble.

X Q. 91. Now, what effect did the advent of prohibition have upon the crown cork industry?

A. I don't know whether I quite get what you mean.

X Q. 92. Well, did it affect the sales in any way when prohibition went into effect in 1920?

A. The principal effect it had on the crown cork industry was to largely eliminate what was known as the sale of home brew crowns.

X Q. 93. Just what do you call home brew crown?

A. Crown that was sold for the purpose of brewing in the home, home use.

X Q. 94. Would that have a center spot or not?

A. It would not.

X Q. 95. Was that made of composition or natural cork?

A. That was made of natural cork.

X Q. 96. Isn't it a fact that there are a great many crown caps sold with composition cork, both for beer and various soft drink beverages that have no center spot?

A. There are a great many crowns that are used——

X Q. 97. Composition cork crowns I am referring to.

A. There are a great many composition cork crowns that are sold for beverages that have no spots on them, that is correct.

X Q. 98. And is it the fact that it is only necessary to [fol. 158] put a spot on when a beverage is to be kept for some appreciable length of time, such as for storage or export?

A. The matter, of necessity, I would say would depend more upon the particular kind of beverage and the characteristics of that beverage. When we sell crowns of course we do not know what is going to be the particular characteristic of the drink that it is going to require to seal. You take, for example, Coca-Cola; as far as I know the Coca-Cola crowns do not use spots. But Coca-Cola, unlike any other drink, is sold in an exclusive area, for example, New York City. Coca-Cola here is the only company that can bottle Coca-Cola, and they do not ship it outside of their particular franchise area, which means it requires but a very short seal.

X Q. 99. How about cheaper grades of sarsaparilla and soda water, aren't there a great many of those sold using, aren't there a great many crowns sold for that purpose made of composition cork without a center spot?

A. They are practically all of what they call short hold drinks, they are consumed within a very short time after sealing.

X Q. 100. Have you any idea of the approximate number or gross a year that would be used in the trade for such purposes as that?

A. You are speaking of the industry?

X Q. 101. Well, yes, the whole industry.

A. I do not have any figures pertaining to the industry.

X Q. 102. Take your own company, for instance.

A. I submitted it as one of the exhibits yesterday.

X Q. 103. You may take all the exhibits. Will you just keep all of those in your hand until we get through and it [fol. 159] will save running back and forth.

Can you tell from those?

A. Exhibit 29 carries a record of the plaintiff's sales of soft drink crowns in the years 1928 to 1934, both inclusive. This figure includes the sale of glazed paper spot crowns which, however, are shown in a separate column. It shows that commencing with the year 1928, when we introduced the glazed paper spot crown, there were less than one per cent of such crowns sold, and that by 1932 it had increased to ten per cent of the total sales of soft drink crowns, and in 1934 was six and a half per cent of the total sales of soft drink crowns.

X Q. 104. I notice, referring you to this Exhibit 29, that in 1933 you sold one million four hundred and some thousand of glazed paper spots, and the same year you have there soft drink, 17,148,000 gross, whereas in 1934 you have glazed paper spots, 1,027,507 and soft drink, 15,809,000. How do you account for the falling off of 4,000,000 gross of glazed paper spots there?

A. 4,000,000?

X Q. 105. No, 400,000, I beg your pardon, and practically 2,000,000 in the soft drink column.

A. Based upon the percentage of sales of glazed paper spot crowns to the total soft drink crowns it indicates that the percentage of sales by us of glazed paper spot crowns was less than in the year 1933. We attribute that largely to the fact that with the repeal of the Eighteenth Amendment the sale of high grade ginger ales fell off, at least, our sales to such companies fell off.

X Q. 106. That would apply to all soft drinks, wouldn't it?

A. I wouldn't say so, no, because the so-called soft drinks, exclusive of ginger ale are largely what we term

[fol. 160] sweet drinks, and the average sweet drink consumer is not as a rule a beer drinker.

X Q. 107. I notice in 1928 you have under your soft drink heading 28,000,000 gross and some hundred thousand as against only 15,000,000 in 1934. That is a falling off of almost 50 per cent. What do you attribute that to?

A. As between 1928 and 1934, the major portion of that reduction would be due to economic conditions, in my opinion.

X Q. 108. It is impossible for you to say how much was due to economic conditions and how much to business carried on by your competitors, isn't it?

A. I have no figures to show the precise amount of business done by our competitors.

X Q. 109. Coming back for a moment to the natural cork business again, did the war have any effect on the supply or cost of natural cork?

A. I do not recall any actual costs of discs, natural cork discs, during the time of the war. I do distinctly recall that we were able to import all the natural cork discs that we wanted. In fact, we chartered our own vessels, we brought over to Baltimore the largest cargo and paid the largest duty that was ever paid at the Port of Baltimore, something in the neighborhood of \$98,000 duty on one consignment of natural cork discs.

X Q. 110. Well, just put a date on that approximately, if you remember. Just add to that answer the date of that shipment, will you?

A. I don't recall the exact time when that occurred. It was probably in—I am only trying to recall this—possibly 1916 or thereabouts.

X Q. 111. Well, you say you had no difficulty in getting [fol. 161] cork from abroad. Isn't it a fact that during the war it was not possible to ship the cork as freely as it had been prior to that and that a lot of cork was stored on the other side and became mouldy or bad?

A. We have our own disc manufacturing plants in Spain and Portugal and we did not store any unusual quantities of cork during those periods.

X Q. 112. Didn't the Crown Cork & Seal Company have to close up practically 100 or 101 or 102 of its branches along about 1924 or '25 or '21?

A. When you say, didn't they have to, I do not get exactly what you mean.

X Q. 113. Well, didn't they as a matter of fact close up 101 branches?

A. There was a time when we had something like 104 branches throughout the country. The policy insisted upon by our then president and never concurred in by the majority of the management of the rest of the organization, of which I was one, was the cause of that. It was on our recommendation in the year 1921, when we had a depression, that we closed the majority of our branches.

X Q. 114. That would be in the neighborhood of 100 branches?

A. That we closed?

X Q. 115. Yes.

A. No, we cut them down at that time to about 26. They were distributing depots, not manufacturing branches.

X Q. 116. Well, didn't you sell your cork plant or factory or whatever you call it in Portugal and Spain?

A. As the result of a trip that I made to Spain and Portugal in 1925 we consolidated our operations in Seville instead of operating both in Spain and in Portugal. Since the formation of the plaintiff company there was another corporation formed, known as the Crown Cork International [fol. 162] tional Corporation which took over these foreign plants. They are still owned and operated by the Crown Cork International Corporation. In fact they have more natural cork disc plants over there now than we had in former times. These are for the purpose of taking care of their various foreign affiliations.

X Q. 117. Well, isn't it a fact that somewhere we will say between 1920 and 1924 that the Crown Cork & Seal's statement to its stockholders showed a loss of upwards of five million dollars in crown corks?

A. Throughout the period between '20 and '24 or '25 we sustained very heavy losses.

X Q. 118. Due to what principally?

A. It would be difficult for me to answer that question without having an analysis of what those losses really consisted of. I do not have those, of course, in my mind.

X Q. 119. Well, wasn't one of the main reasons the fact that composition cork came into the market then?

A. That was not the cause of the losses because we were manufacturing composition cork long before that, and

manufacturing in large quantities and that end of our business was always a profitable end of the business.

X Q. 120. When did you first begin to manufacture composition cork—I mean by you the Crown Cork & Seal Company?

A. As best that I can recall somewhere about 1906 or 1907, maybe a little faster than that. I have just got to guess at that.

X Q. 121. Just to fix your date, isn't it a fact that a patent was taken out about 1911 by a man named Jones for composition cork?

[fol. 163] Mr. Darby: Your Honor, we object to that. This witness has not testified with reference to any patents.

Mr. Warland: I am just trying to fix the date, your Honor.

The Court: All right, if you are just trying to fix the date.

A. I do not know of any patent taken out by a man by the name of Jones, there may have been.

X Q. 122. Well, if you began the manufacture of composition cork discs in, say, 1907, wasn't the need of a center spot apparent at that time?

A. In 1907, please remember I had only been with the company four years. I was but a clerk and I did not know what the requirement was.

X Q. 123. Well, take 1912 as an illustration. At that time the Crown Cork & Seal Company was making and selling discs of composition cork, was it not?

A. They were.

X Q. 124. And in very considerable quantities?

A. Yes.

X Q. 125. Well, wasn't the need of a center spot apparent at that time?

A. There has always been a need for crowns that would replace effectively natural cork disc crowns and something that would serve the high grade beverages. Whether that would be a center spot crown, or whatever it might be. The center spot is what was ultimately developed to meet that need.

X Q. 126. It was developed because it was cheaper than natural cork, wasn't it?

A. Not because it was cheaper but because it was more efficient for the purposes for which it was designed to fill.

[fol. 164] X Q. 127. Do you say as a general proposition

that a center spot crown was more efficient than a natural cork crown?

A. Yes.

X Q. 128. Referring to Exhibit 33, I notice you have a tabulation there of aluminum spots, tin spots and glazed paper spots, and the first year you have given is 1923 for tin spots, and in 1924 and 1925, there were no- either aluminum or glazed paper spots. Is 1923 the first year that you used center spots of any kind?

A. No, 1923 was as far back as we had any records available for the preparation of this statement.

X Q. 129. But you had used them quite a number of years prior to that?

A. My recollection is that we used tin-foil spot corks somewhere along about 1917 or 1918.

X Q. 130. That is merely your recollection without being refreshed from any records? I mean, you are testifying from your recollection only, is that right?

A. I looked up records to ascertain that for the purpose of answering certain of your interrogatories.

X Q. 131. Now, I believe you said a few moments ago that there was never any suitable paper center spot until the Warth patents came on the market; that is correct, isn't it?

A. That is my understanding.

X Q. 132. And you never heard of any other patent or any other manufacturer of center spot crowns making paper center spots?

A. We didn't find them on the market.

X Q. 133. Did you ever use parchment as a center spot?

A. Not as I know of.

X Q. 134. Do you recall making some affidavits in the prosecution of these two applications for patents on center spot crowns?

A. I perhaps did.

[fol. 165] X Q. 135. You were aware of the patent situation at the time you made those affidavits?

A. I do not know what patent situation you refer to.

X Q. 136. Well, the patent situation—

Mr. Darby: Show him what you are talking about, show him the affidavit.

X Q. 137. All right. I show you an affidavit dated December 31, 1932, which appears in the certified copy of the

file history of application for patent No. 1,899,783, and ask you if that is a photostat copy of your signature?

A. I would say that it is.

X Q. 138. What about the patent to McManus, did you ever hear of that patent which was testified to here yesterday by Mr. Weisenburg?

A. Yes, I have heard of it.

X Q. 139. Is that suitable for center spots?

A. It is my understanding that it was never——

Mr. Darby: Your Honor, we object to the question as to the suitability of the patent. This witness has not qualified as a patent expert or shown any knowledge along that line. If opposing counsel wishes to make the witness his own we have no objection.

The Court: What was the question?

(Last answer repeated by the reporter.)

The Court: He hasn't qualified as an expert on patents, whether it is suitable or not.

Mr. Warland: I am not asking him——

The Court: You did ask him if they were suitable.

[fol. 166] Mr. Warland: Well, I mean as a manufacturer, not as an expert on patents.

The Court: I do not know that he knows anything about it; he hasn't shown it. He has been here as a business man. I haven't heard him talk about manufacturing; I heard him talk about business, about the volume of business, and so forth. This is more of an office man's job than a manufacturer.

X Q. 140. As I understand your testimony yesterday and today, this Warth patent is the only one that is suitable——

Mr. Darby: No——

X Q. (Continuing.) —that the glazed paper spot crowns is the only one suitable for capping ginger ale, is that right, for center spots?

A. I do not understand that question.

Mr. Darby: I object to it.

(Last question repeated by the reporter.)

The Court: You asked him if it is the only one that is suitable. You can ask him if it is the only one they use, or some-

thing like that, but he is not a patent expert; how does he know whether they are suitable or not? He hasn't qualified. Perhaps he may know enough of the structure that they manufacture to tell you, I do not know whether he knows that or not.

Do you have anything to do with manufacturing at all?

The Witness: No, I have nothing to do with manufacturing.

[fol. 167] The Court: You were an office man, were you?

The Witness: Yes, sir.

The Court: You were working looking after the financing, and things of that character?

The Witness: General corporate matters and matters of that sort.

X Q. 141. But so far as you know the only kind of paper spots which the plaintiff put out was that made of glazed hard paper varnished and coated with gutta percha?

A. I think I testified yesterday that we were manufacturing a glazed paper spot using what is known as express paper and also what is known as bleached kraft paper, both of them having varnished coatings.

X Q. 142. The list that you put in here showing the sales of metal foil spots and also of glazed paper spots, why did you use metal foil spots in some cases and paper spots in another?

A. On the recommendation of our laboratories as to which is the most suitable for the different purposes.

X Q. 143. Well, which is cheaper, the metal foil or the glazed paper?

A. That would depend—do you mean the selling price?

X Q. 144. Yes, the selling price.

A. The selling price today of glazed paper and aluminum spot I think is within about one-half a cent per gross of each other.

X Q. 145. Which is the most expensive, aluminum or a center spot of paper?

A. The aluminum. My recollection is—I think the aluminum is a half a cent cheaper, but I am not sure of that. I [fol. 168] have nothing to do with sales prices because I do not use them in the sense of ever having occasion to quote them.

X Q. 146. Now, isn't it a fact that you used glazed paper spots on crowns which are to be used for bottling carbonated waters and acidulated waters and things of this sort?

A. Generally speaking we recommend tin-foil for waters, aluminum for cereal beverages, and paper for the so-called acidulous drinks.

X Q. 147. You know in your position what kind of caps are suitable for sale to the trade, don't you?

A. In a general way, yes. The question of suitability of a product for any specific drink is something that is always taken up with our laboratories and we act upon their recommendation.

X Q. 148. Well, after the laboratory has recommended a certain type to you, aren't you qualified to know or don't you know whether it is suitable for the trade or not?

A. I attempted to answer that a moment ago by saying that generally speaking we recommend tinfoil for waters, aluminum for cereal beverages, and paper for acidulous drinks. Now, there may be certain individual cases where a condition existed that our laboratories would recommend something else, which I would not know about, but the sales department would.

X Q. 149. Do you have anything to do with the sales department?

A. Nothing.

X Q. 150. Now, this affidavit that I showed you a moment ago in the file of application for patent No. 783, how did you come to make that?

A. How did I come to make that affidavit?

X Q. 151. Or why did you make it?

[fol. 169] A. That affidavit was made in connection with—may I be allowed to see it just a moment?

X Q. 152. Surely.

A. This affidavit was made in connection with the request of our counsel for information to be used in this interference.

X Q. 153. You said interference; I believe it is just for use in the application.

A. Oh, I see.

X Q. 154. He got you to make it because you had knowledge of the fact of what was on the market and what was done by other manufacturers, didn't he?

A. They had me make it as an officer of the company. Before executing any affidavit I satisfied myself as to the correctness of the statements by information which I am

able to obtain from various members of the organization and what personal knowledge I have of the subject.

X Q. 155. And you stated in that affidavit that prior to 1925 the only kind of center spots on the market were made of metal foil, didn't you?

Mr. Darby: Please let the witness read the affidavit, Mr. Warland.

X Q. 156. Sure, read it.

A. Yes, sir.

X Q. 157. Have you read it?

A. Yes, sir.

X Q. 158. You stated in that affidavit, did you not, that prior to 1925 the only center spots that were made were of metal foil?

A. To the best of my knowledge and belief, yes.

X Q. 159. What about 1928, the manufacture of paper spots in 1928? You refer to that in your affidavit?

A. Yes.

X Q. 160. Say you first began to sell them?

A. Yes.

X Q. 161. You sold them in 1927, didn't you?

A. Experimental sales.

[fol.170] X Q. 162. Whom did you sell those to?

A. Burroughs Brothers and McCumber Orchard Company.

X Q. 163. When were those sold to Burroughs Brothers and McCumber Orchard Company?

A. My recollection is that a sample order was shipped to Burroughs Brothers approximately in May, I think it was.

X Q. 164. 1927?

A. 1927, and to McCumber Orchard I think in September, 1927.

X Q. 165. And they all paid for those caps?

A. They were paid for.

Mr. Warland: I think that is all. I would like to mark this File Wrapper for identification.

The Court: All right.

(Marked Defendant's Exhibit A for identification.)

Redirect examination.

By Mr. Darby:

R. D. Q. 166. Just to get the record straight, Mr. Fusting, you were asked some questions about the advent of the so-called home-use crown for the home bottling of beer, which occurred during Prohibition, and I believe you were asked the question whether those crowns contained composition cork or natural cork; what is the correct answer to that?

A. Composition cork; the sales for home use always required the cheapest possible crown that they could buy.

R. D. Q. 167. You have been asked some questions about this affidavit which you made in the filing of Warth patent No. 1,899,783, and I wish to read you one sentence from that [fol. 171] affidavit which reads, "The increase in sale"—

Mr. Warland: Just a moment. I object to that unless the affidavit is in. He says it is all true, and of course it is true.

Mr. Darby: The affidavit is in.

Mr. Warland: I will offer it in evidence if I may now.

Mr. Darby: I just wish the witness to testify to one point.

The Court: All right. If you want it in evidence, all right.

Mr. Darby: "The increase in sale"—

The Court: Is it in evidence?

Mr. Warland: I will offer it in evidence.

The Court: All right.

(Defendant's Exhibit A for identification marked in evidence.)

R. D. Q. 168. And this statement reads, "The increase in sale from less than 100,000 gross in 1928 to over 2,000,000 gross in 1930 was accomplished virtually without advertising and I can find no record of any advertising expense with reference to the paper spot crown other than one or two simple announcements in trade journals that the company was making at this price. In practically every instance there was no particular effort made to sell the paper spot crown. The same was merely submitted to companies such as Canada Dry and the Cliquot Club Company. After months of test, these companies adopted the new product of their own volition in preference to the crown they had previously [fol. 172] used." Is that statement correct?

A. That is correct.

R. D. Q. 169. And the crown they had previously used was the natural cork disc crown?

A. The natural cork disc crown.

Mr. Darby: That is all.

Recross-examination.

By Mr. Warland:

R. X Q. 170. Why did the companies use those composition crowns; that was to save money, wasn't it?

A. Which companies?

R. X Q. 171. The ones just referred to in your answer to Mr. Darby's question. With reference to the home brewers and people of that type, they bought composition cork crowns to save money?

A. It was the cheapest composition crown that could be made.

Mr. Warland: That is all.

(Witness excused.)

Mr. Scull: Plaintiff rests, your Honor.

Mr. Warland: I now offer in evidence, if your Honor pleases, certified copy of the File Wrapper of Application of John Alberti for patent No. 1,199,026, dated September 9, 1916.

(Marked Defendant's Exhibit B in evidence.)

[fol. 173] ARTHUR F. ROHRMAN, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. Where are you employed, Mr. Rohrman?

A. The United States Patent Office.

Q. 2. And you have charge of the records down there, file wrappers and so forth?

A. Have charge of them?

Q. 3. Well, what are your duties down there?

A. I have charge of the interference records, yes.

Q. 4. Do you have any custody of the other documents of the Patent Office?

A. Yes.

Q. 5. I asked you to produce, in accordance with an order of this Court, the original File Wrapper of the Alberti patent and also the original file of the patent to McManus No. 1,339,066.

A. Yes.

Q. 6. And have you produced those two documents?

A. I have, yes.

Q. 7. Are there attached to those two files any exhibits of any kind?

A. There are.

Q. 8. Will you please show them to the Court?

A. This is the Alberti file.

Q. 9. Were those attached to the affidavit filed under provisions of Rule 75?

A. They were filed under provisions of Rule 75, yes, sir.

Mr. Warland: Your Honor, these are caps which are attached to the affidavit (indicating and handing caps to the Court).

The Court: All right. I have seen them, sir, what are you going to do about them?

[fol. 174] Mr. Warland: I cannot offer those in evidence if your Honor pleases, but I simply produced this witness without any attempt at argument at this time to have your Honor compare those caps with the caps which we are accused of infringing.

The Court: I have looked at them.

Q. 10. Now, will you please look at the file of the application for the McManus patent 1,339,066 and see if there are any exhibits attached to that?

A. Yes, sir (producing caps).

Mr. Warland: And I ask you Honor to look at these.

The Court: Very well.

Mr. Warland: That is all.

JOHN ALBERTI called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

The Court: Mr. Warland, those are not in evidence, they will never be any part of the record.

Mr. Warland: I can't get them in the record, I simply wanted to call them to your Honor's attention to show the comparison between those which we are making and the ones that we are alleged to infringe. That is our defense, 95 per cent. of ours are made in accordance with this.

The Court: You have got the patent in evidence, haven't you?

[fol. 175] Mr. Warland: Yes.

The Court: They wouldn't go up to the Circuit Court of Appeals.

Mr. Warland: The only way I can get them up there would be to have this witness go to the Circuit Court of Appeals if the case should go there. I do not know how else to handle the situation. Suppose, for the sake of the record, I offer them in evidence, would your Honor have them marked in evidence for identification so that they may be identified at a higher court?

The Court: I do not know; that is up to you.

Mr. Warland: I am offering them now.

The Court: You can substitute a photostat of the affidavit.

Mr. Warland: I have a certified copy.

The Court: If you have the File Wrapper and contents it will go in anyway.

These may be deemed marked in evidence, they cannot be marked, as they are public records, but they may be deemed.

(Deemed marked Defendant's Exhibit C in evidence.)

Mr. Warland: Now, I also offer in evidence the three caps attached to the McManus affidavit made under Rule 75.

The Court: That is received, but they cannot be marked because they are public records and they will remain in the custody of the Patent Office.

(Deemed marked Defendant's Exhibit D in evidence.)

[fol. 176] Q. 1. Mr. Alberti, you are the John Alberti mentioned in this original application for patent, are you not?

A. Yes.

Q. 2. I show you an affidavit made under the provisions of Rule 75, dated the 6th day of December, 1915, and ask you if that is your signature to that affidavit?

A. Yes, that is my signature.

Q. 3. And these three caps which have been produced by the Custodian of the Patent Office, are those the caps that were attached to that affidavit and filed with your application, being Defendant's Exhibit C here?

A. Yes.

Q. 4. There was another affidavit attached to that file made by Mr. Melchor Marsa; do you know where Mr. Marsa is now?

A. I believe he is here.

Q. 5. He is in this country?

A. In this country, yes.

Q. 6. Do you know whereabouts?

A. He is stopping at the Hotel McAlpin.

Q. 7. What business are you in now, Mr. Alberti?

A. Manufacturing bottle caps.

Q. 8. How long have you been connected with the business of manufacturing bottle caps?

A. Oh, about thirty years.

Q. 9. Where were you in the years 1911, 1912 and 1913?

A. I was an officer of the International Cork Company.

Q. 10. And you were making what at that time?

A. We were making corks, ordinary bottle corks and bottle caps of the type known as crown corks.

Q. 11. Were you making center spots at that time such as typified by that Exhibit C, the three caps I have just shown you?

A. No.

[fol. 177] Q. 12. When did you first make a center spot like that, when did you first make the center spot like that shown in those samples attached to the affidavit?

A. The caps referred to in that patent?

Q. 13. Yes, in that affidavit, the ones I just showed you?

A. In the early part of 1914.

Q. 14. How early in 1914?

A. Well, I haven't been able to fix the exact date; sometime in the spring.

Q. 15. I show you a patent to E. and J. Alberti No. 1,401,300, filed June 19, 1916, which is entitled, "A machine for manufacturing closers for bottles and other receptacles." It was taken out by E. and J. Alberti. Are you the J. Alberti mentioned in that patent?

A. Yes, I am.

Q. 16. That machine was for making center spots like that shown in Figs. 14 and 15, was it not?

A. Yes.

Q. 17. Are you sure that you did not make these caps like those attached to your affidavit which have just been shown to you, some time in 1913?

A. I am reasonably sure of that, yes.

Q. 18. Have you any data on the matter at all to refresh your recollection?

A. No, I haven't.

Q. 19. Now, at that time, were there center spots on the market that you knew of?

A. There was only one kind that I can recall.

Q. 20. And that was what?

A. That was the kind made by the United Cork & Seal at Millis, Massachusetts.

Q. 21. Do you mean like the cap marked, "White Rock," which is Plaintiff's Exhibit 20?

A. Yes, that looks like the kind.

Q. 22. I show you another one where the cap is cut half way through the top (handing to witness).

A. Yes, I think that is the kind.

[fol. 178] Q. 23. Your company, the International Cork Company brought a suit against the New Process Cork Company, didn't it?

A. Yes, but not about any metal center spots.

Q. 24. They brought a suit about caps, having nothing to do with center spots?

A. That is right.

Q. 25. And afterwards that suit was settled in some way, was it not, by the New Process Cork Company buying out the International Cork Company?

A. The suit was not settled.

Q. 26. After the suit was tried?

A. After the suit was tried, after the case was decided against them it just happened that we entered into negotiations and they bought our company, our crown business.

Q. 27. Did they buy out this patent which you have just testified about?

A. Yes, sir, all of the patents that the company owned that related to crown corks or their manufacture.

Q. 28. And about what time was that sale made to the New Process Cork Company?

A. In 1925. November 1st, I think, was the actual date, but the deal was consummated some time in July.

Q. 29. Have you any knowledge of the various center spot caps made by other manufacturers?

A. You mean today?

Q. 30. Well, let us say along in 1913, '14, '15 and '16.

A. Well, I do not remember any successful ones at that time excepting the one that I mentioned. There were other attempts made.

Q. 31. Who made the attempts?

A. Well, we made an attempt—the International Cork Company, and the New Process Cork Company had some patent relating to center spots and then there was the American Cork & Seal, or some such name, located in Philadelphia.

[fol. 179] Q. 32. Do you know whether any center spot caps made of parchment paper were ever sold by the New Process Company or anybody else?

A. No, I do not.

Q. 33. And you were in a position to know of sales by other manufacturers in the center spot industry, were you not?

A. Yes, I think we were in an adequate position to know.

Q. 34. When did you take up the manufacture of these center spot crowns made in accordance with this patent and like those which I have just shown you, attached to your application?

A. We never really did manufacture them for production you see.

Q. 35. Do you recall calling at my office some day this Spring in company with Mr. Gutmann?

A. Yes.

Q. 36. Do you remember that we asked you about the dates when you first made this cap?

A. Yes.

Q. 37. And do you remember telling us that you made an affidavit for Mr. McManus within the last year?

A. Yes.

Q. 38. And could not tell us anything about the caps for that reason?

A. No, I did not say that.

Q. 39. What did you say?

A. I told you that previous to your visit—that is the visit to you—I had made an affidavit to the Crown Cork about the same matter.

Q. 40. And have you a copy of that affidavit?

A. No.

Mr. Warland: Will you produce that affidavit, Mr. Scull I subpoenaed it.

The Witness: I never did have a copy of it.

[fol. 180] Q. 41. Is this the affidavit you made for the Crown Cork & Seal Company?

A. Yes.

Mr. Warland: I offer that in evidence.

The Court: Is there any objection to that?

Mr. Scull: None.

(Marked Defendant's Exhibit E in evidence.)

Q. 42. Was a suit pending against the International Cork Company brought by the Crown Cork & Seal Company for infringement of certain patents sometime in 1913 or 1914?

A. Yes, I think so.

Q. 43. And you had to change your machines, didn't you, to obviate the outcome of that suit?

A. Oh, that was much earlier we changed our machines.

Q. 44. Weren't you busy making changes around 1913 and 1914?

A: Yes, particularly 1913, I think.

Mr. Warland: I think that is all.

Cross-examination.

By Mr. Scull:

X Q. 45. Mr. Alberti, what is the structure of those spot crowns which are in Exhibit C? In the first place, what is the foil, what metal?

A. Exhibit C, is that the ones we submitted to the Patent Office?

X Q. 46. Yes.

A. What was the spot material?

X Q. 47. What kind of foil is that?

A. That is tin-foil.

X Q. 48. How is it fastened to the cork?

A. By the use of albumen as an adhesive.

[fol. 181] X Q. 49. Well, albumen is not heat-fusible?

A. No, it is hardened by heat, just the reverse.

X Q. 50. And those particular samples were made how, on a machine or by hand?

A. Partially by hand, I think, and partially by machine; I can't recall the exact circumstances under which they were made.

X Q. 51. When you first made bottle caps, and you think possibly that was in 1914, at that time you had no machine for making these?

A. No.

X Q. 52. Well, when you say partly by machine and partly by hand, you mean that the crowns themselves, that is to say, the shell with the cork disc in it, was made, by machine, and then you pasted on the spot by hand?

A. Well, I mean I can't recall whether—we probably adapted one of our machines that was used for assembling crowns just for making these samples or other samples of that kind.

X Q. 53. Did you ever try any other adhesive for spot crowns than this albumen?

A. No.

X Q. 54. My understanding is that when that is put on it is wet?

A. Yes.

X Q. 55. I think you said that you never did really manufacture these spot crowns; that is correct, is it?

A. That is what I said, yes.

X Q. 56. What did you do after you had made these samples of which Exhibit C is representative, so far as manufacturing is concerned? Were any steps taken looking to the manufacturing?

A. At our convenience we attempted to make them commercially.

X Q. 57. What did you do, how did you go about that?

A. We made, oh, we made one or two other types of machines before the one illustrated in that patent was made.

[fol. 182] X Q. 58. And by that patent you mean the machine, a picture of which I show you—

A. The one applied for in 1916.

X Q. 59. Such as shown in patent No. 1,401,300?

A. That is the one that my brother applied for, my brother and I?

X Q. 60. That is the E. and J. Alberti?

A. Yes, that is the one.

X Q. 61. Now, will you tell us?

A. We made experiments from time to time and when we could not get the results we were after we tried something else until we got to the machine mentioned in this patent. That was the best one made for that purpose but even that did not produce commercially successful crowns, so we abandoned the idea.

X Q. 62. What were the difficulties that you experienced with it?

A. The main difficulty was we could not get a clean crown, a clean center. The glue would, if we did not put enough glue on then we had trouble about the discs—the metal disc coiling and sometimes bending over due to friction with each cap. Then, our greatest difficulty was when we put too much adhesive in there, there would form, as the pressure was applied for the hardening, little bubbles would form at the edge of these centers and there would be too many of those and we would have to reject them.

X Q. 63. My understanding from your patent 1,401,300 is that what you were attempting there was to have some kind of a dropper which would drop the albumen adhesive in solution on a disc and then some kind of a dauber would pick it up from there and put it on the crowns, is that right?

A. No, I think the way the machine operated was this; [fol. 183] we applied a drop of adhesive to a pad, a felt pad and then we picked up part of that adhesive by means of a punch, just as you would on a rubber stamp pad, and then apply that to the cork disc. That was done in an effort to overcome this difficulty of applying too much adhesive.

X Q. 64. And these earlier machines, I assume, what you tried to do was drop the adhesive directly on the cork?

A. Yes.

X Q. 65. And that you found to be a failure?

A. Yes.

X Q. 66. And you also found this means of picking it up with a punch to be a failure?

A. Even through that method we could not avoid this difficulty and if the center is not absolutely clean it does not make a commercial article.

X Q. 67. Did you try paper?

A. No, we never attempted paper. At that time I do not believe paper was in use anywhere. I do not believe that kind of paper, used today, was invented then.

X Q. 68. Now, did you turn to another form of cap to get the effect of a center spot?

A. Yes, we tried one. It was made by first placing a tin metal disc on the tin shell or cap and then placing over that a ring or washer made of cork.

X Q. 69. In other words you departed from the accepted and established form of a shell with a cork disc in it?

A. Yes.

X Q. 70. So you tried something else along different lines?

A. Yes.

X Q. 71. Was that successful?

A. No, and that was very expensive, too.

X Q. 72. How much do you suppose you spent altogether [fol. 184] on your experiments trying to get a spot crown?

A. Well, probably five or ten thousand dollars, I really don't know though.

X Q. 73. Over how long a period were you trying it?

A. About two years or so—two or three years.

X Q. 74. And is it fair to say that the problems in these spots—spot crowns—so far as your experience with it went was to put a spot on accurately and cleanly and at a high speed, is that right?

A. High speed and low cost.

X Q. 75. High speed and low cost are the same thing, aren't they?

A. Yes.

X Q. 76. In other words, in this particular business it is essential that you get high speed?

A. Because it is an article sold at a very low price, it is a volume article.

X Q. 77. Were you directly in charge of this experimentation or did somebody else take care of it for you?

A. I was always in touch but I did not do the actual experimenting most of the time.

X Q. 78. Who did it?

A. It was in charge of my older brother and Mr. Marsa and-if it was a mechanical experiment it was under the man in charge of the machine shop at the time, either Mr. Nagy or Mr. Bogdamffy or whoever happened to be in charge during that period.

Mr. Scull: That is all.

Redirect examination.

By Mr. Warland:

R. D. Q. 79. Just a moment. I understand you to say you did make some crowns like that shown in your patent; that is true, isn't it?

A. Yes.

R. D. Q. 80. Quite a material number?

A. No.

[fol. 185] R. D. Q. 81. The only trouble, you didn't make—the only reason you didn't make a very large number is because you didn't have proper equipment or proper machines, is that right?

A. Well, I wouldn't say that. This machine never left our experimental department; it was never placed on the floor for production, you see.

✓ R. D. Q. 82. But you could have made them if you had had a proper machine?

A. We could submit samples, fairly large quantities of samples, but we had to reject quite a few to do that. It is a question whether we could have produced them on a large basis—

R. D. Q. 83. It came down—

A. We never got any orders so I can't say that.

R. D. Q. 84. It came down to a proposition that the method of manufacture you had was too expensive to make it commercially feasible, is that right?

A. Yes, yes, that is right.

R. D. Q. 85. You mentioned Mr. Bogdamffy a moment ago; he was employed by you, I mean in 1911, 1912, 1913 and 1914?

A. Yes, he left us about that time.

Recross-examination.

By Mr. Scull:

R. X Q. 86. Mr. Alberti, did you ever send out any of these spot crowns for test by any customers?

A. Oh, yes.

R. X Q. 87. What were the results?

A. Well, I do not believe we got any real good technical reports, we just didn't get any business.

R. X Q. 88. By the way, in your experience with these crowns, what is the fact so far as tests are concerned, does it take a short time, a long time, or what is the procedure?

[fol. 186] A. Ordinarily in bottled beverages it takes quite some time to get results.

R. X Q. 89. It was the custom in the trade, then, to put the caps on and then subject them to a time test?

A. Yes.

R. X Q. 90. Before they determined whether or not they were satisfied?

A. Yes. The custom is the bottlers are very slow to change.

ALEXANDER BOGDAMFFY, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What is your business now, Mr. Bogdamffy?

A. I am engaged now in building homes.

Q. 2. Were you ever engaged in the crown cap business?

A. I was.

Q. 3. I show you three patents numbers 1,053,898, 1,169,608 and 1,053,565, and ask you if you are the Mr. Bogdamffy mentioned in those patents?

A. Yes.

Q. 4. You are acquainted with Mr. Alberti, the last witness, aren't you?

A. Yes, sir.

Q. 5. Where were you employed during the years 1911, 1912 and 1913?

A. With Alberti, from 1909 till 1914, early summer.

Q. 6. That was the International Cork Company?

A. International Cork Company.

Q. 7. And the factory at that time was where?

A. Sutton Street in Brooklyn.

Q. 8. I show you a cap, Plaintiff's Exhibit 20, marked [fol. 187] White Rock, and ask you if you have ever seen caps made like this?

A. Yes, I have.

Q. 9. About when did you see the first one of those?

A. The first one I seen was approximately in 1913.

Q. 10. Now, I show you another exhibit, Plaintiff's Exhibit 8, which is a crown cap with a cork lining and a metal center spot of some kind, fastened thereon.

A. Yes.

Q. 11. Have you seen those before?

A. Yes, I have seen those late in 1913.

Q. 12. And whereabouts did you see that?

A. Mr. Emil Alberti, the brother of John Alberti, he showed me a few of those caps.

Q. 13. And how do you fix the date of 1913?

A. Because we were engaged in changing machines from a method—the American Cork & Seal brought a suit against the method and the question was, could we manufacture them and we had no time then to bother with anything else but to change our machines to get away from the infringement.

Q. 14. Have you got anything to refresh your recollection on that date of 1913?

A. I refresh my recollection on the basis that Mr. Nagy who was employed under me as my assistant, he stepped out from the International having a patent of his own—an idea of his own which he patented in his name and he brought a test exhibit to be tried out and he offered it for sale, to Mr. Alberti.

Q. 15. Did he bring a copy of the patent with him?

A. I am not recalling that whether he had a copy of the patent or not, but he did have it patented, he was covered.

Q. 16. Do you know when he came whether the patent had [fol. 188] been issued on that or not?

A. If my recollection is correct I think he had the patent issued.

Q. 17. I show you a patent to Nagy No. 1,063,720 dated June 3, 1913. Is that the patent you referred to?

A. Yes, that is the patent.

Q. 18. How long did Mr. Nagy work for the International, so far as you know?

A. Approximately a year and a half.

Q. 19. Well, beginning when and when did he leave?

A. He began late in 1911—or early in 1912—no, late in 1911 he began and he left, if my recollection is right in the spring of 1913.

Q. 20. Did you ever have any discussion with Mr. Alberti about manufacturing caps like that one with the metal foil that I just showed you, Plaintiff's Exhibit 8, did you ever talk that with Mr. Alberti about manufacturing them?

A. Mr. Emil Alberti showed it to me and asked me whether we could manufacture them, but being that we were engaged we did not bother with any experiments of the kind.

Q. 21. When did you leave the International Process Company?

A. Approximately in the early Summer of 1914.

Q. 22. What did you do after you left the International Cork Company?

A. I went in business for myself—on designing machines and patenting them.

Q. 23. Machines for what?

A. Crown cork manufacturing and cork manufacturing.

Q. 24. Do you know Mr. Mundette of the Mundette Company?

A. Yes, I do.

Q. 25. Did you ever do any work for him?

A. I did.

Q. 26. When was that?

A. That was in 1916.

[fol. 189] Q. 27. How do you fix that date?

A. I have some orders from Mr. Mundette. I will read the date when I had the first order from Mr. Mundette, it was April 15, 1915.

Q. 28. What was that order for?

A. It was one blocking machine, cost not to exceed \$1,000.

Q. 29. A blocking machine?

A. A blocking machine, that was for cork, a regular bottle cork. The second was May 29, 1915, it was 8 machines to paste paper as per drawings and two machines for cutting cigarette tips.

Q. 30. While you were working for Mr. Mundette, did you see any crown caps with center spots?

Mr. Scull: I object, your Honor. This refers to a crown manufacturer by the name of Mondette who is not treated as a prior user in the pleadings and this man is not a prior user and I do not think that any testimony along that line is proper.

The Court: You cannot offer any testimony on prior users that are not pleaded.

The Court: I will sustain the objection.

Mr. Warland: May I hear the last question?

(Last question repeated by the reporter.)

Q. 31. After you left International and after 1920 did you see center spots made by other manufacturers? 1920 is the date of the McManus patent.

A. After 1920?

Q. 32. Yes.

A. Yes, I have.

Q. 33. Who was making those?

A. I do not know that.

[fol. 190] Q. 34. Was it more than one manufacturer that you know of?

A. By using different drinks I saw the center foil on the corks, but I do not know who they was manufactured by.

Q. 35. Did you see many of those?

A. Not many because I was not interested in it commercially looking for a cap.

Q. 36. Do you know the firm of Bamberger & Kraus?

A. I do.

Q. 37. Did you ever see any center spots made by them subsequent to 1920?

A. I have.

Q. 38. Did you see caps made and sold by Mundette subsequent to 1920 having center spots?

A. I have.

Cross-examination.

By Mr. Scull:

X Q. 39. I think you said you saw or Mr. Alberti had showed you some caps like this Plaintiff's Exhibit 8. Do

you know how the foil on that Exhibit 8 is fastened to the cork?

A. I do not.

X Q. 40. Do you know how the foil on the Alberti cap was fastened to the cork?

A. I do not, because we had not manufactured any during my time.

X Q. 41. And therefore, when you said you had seen in the hands of Mr. Alberti a cap like this Exhibit 8, the only thing you were talking about was the superficial appearance of that piece of foil, isn't that right?

A. Correct.

X Q. 42. So far as the rest of it is concerned, you didn't know whether the cork of this particular Exhibit 8 is like the Alberti cap or not?

A. I did not; Alberti did not manufacture any tin-foil at that time.

[fol. 191] X Q. 43. Were you there at the time he was testifying about this morning?

A. Yes, I was here.

X Q. 44. I mean were you with Alberti at that time that he was referring to when they were trying to make a machine to put this spot on?

A. I couldn't hear the conversation through the noise of the elevators, so I do not know what the time was Mr. Alberti testified to.

X Q. 45. Just what was the connection between this Nagy patent that you refer to and the date that you tried to fix, I didn't get that at all?

A. I was asked to refresh my memory as to the date when I seen those caps with the center foil, which Mr. Alberti showed me.

X Q. 46. And you fixed it by that?

A. I fixed it by the date of Nagy, when he brought his model of his, that was right at that time.

X Q. 47. That model of his had nothing to do with center spots, did it?

A. Absolutely nothing.

Mr. Scull: That is all.

Redirect examination.

By Mr. Warland:

R. D. Q. 48. This cap that you saw sometime in 1913 was like Plaintiff's Exhibit 8, in that it had a metal shell and a crown cork disc, and a metal center part, is that right?

A. Correct.

R. D. Q. 49. You do not know how it was fastened on, of course?

A. I do not know.

R. D. Q. 50. You do not know how this is fastened on?

A. I do not.

R. D. Q. 51. When did you say you left the International, sometime in 1914?

[fol. 192] A. International in early summer, 1914, May, June, I can't set the date exactly.

R. D. Q. 52. And had they begun to experiment, tried to make these caps which you refer to, or not?

A. Not.

R. D. Q. 53. What was the reason they gave?

A. Well, they was too busy putting in the machine to get out of the infringement which they had at that time with the Crown Cork & Seal Company.

BERTHOLD NAGY, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What business are you in, Mr. Nagy?

A. I am a crown cap machinery manufacturer.

Q. 2. What kind of machinery?

A. Crown cap machinery.

Q. 3. How long have you been in that business?

A. You mean my own business?

Q. 4. Now, in the business of making crown cap machinery.

A. Crown cap machinery—from about 1912 or '11.

Q. 5. Were you in business for yourself all that time or have you worked for other concerns?

A. I have worked for other concerns.

Q. 6. Whom have you worked for, various people?

A. The first time I worked for the International Cork Company.

Q. 7. Who else?

A. Then the Williamsburg Stopper Company and then the New Process Cork Company and Truslow & Fuller.

Q. 8. I show you a crown cap marked White Rock, Plain- [fol. 193] tiff's Exhibit 20. Have you ever seen caps like that before?

A. Yes, I did.

Q. 9. And do you know how the center spot is fastened in there?

A. Why this is first cut a groove in the cork and all around the tinfoil is forced in.

Q. 10. Is that what you have heard called the Millis type of cap?

A. Yes.

Q. 11. Do you know whether those have been made and sold in large quantities or not?

A. I don't know how much is sold, I am not a crown manufacturer.

Q. 12. Did you work for Mr. McManus of the New Process Cork Company?

A. Yes.

Q. 13. When was that?

A. 1916.

Q. 14. Where was he at that time?

A. In Hoboken.

Q. 15. And that was before McManus moved to Brooklyn, is that right?

A. Yes, sir.

Q. 16. Was McManus or the New Process Cork Company making center spots in 1916 when you were there?

A. Yes.

Q. 17. What kind were they making?

A. They were making a center spot with glue, and paper under the tin center.

Q. 18. By that you mean that the spot itself was tin and there was glue paper underneath?

A. First they put the glue paper on the tinfoil. After the tinfoil was cut with that glue, into the cap and fastened in there.

Q. 19. You mean they made a strip of metal and coated

it with a gum of some sort and then they cut the center spot from that gummy strip, is that right?

A. That is right.

Mr. Scull: That is not what the witness has said.

[fol. 194] Mr. Warland: You may straighten him out on cross-examination.

Q. 20. Did McManus have a machine for making center spot caps at that time?

A. Yes, he did.

Q. 21. I show you patent to McManus No. 1,402,780, dated January 10, 1922. Was that the machine you were working on?

A. No, this is—you cannot see it from the top view—no, I did not work on this machine. He had this already there.

Q. 22. He did have that machine when you came?

A. He had it when I came.

Q. 23. In this patent, did that machine satisfy him or did it not?

A. No.

Q. 24. Did you do anything toward designing or adding to the machine for making center spot caps while you were with the New Process?

A. I made up another machine—not a machine, but an attachment, a cutter, to put the center spot in the crown. Not this one (indicating patent), I made another one.

Q. 25. What sort of machine did you put on, or did you put the attachment on?

A. This was an old Johnson machine and I put the new attachment on the head which done this work.

Q. 26. Now what do you mean by an “old Johnson machine”?

A. An old Johnson machine which was worn out for making—for assembling crown caps.

Q. 27. That was just an assembling machine, the assembling of the cork and metal cap?

A. That is right.

Q. 28. As I understand it did you put an attachment on that machine to cut the center spots out?

A. That is right.

[fol. 195] Q. 29. And when you put this attachment on the machine to cut the center spots out of what material did you cut the center spots out of?

A. Tinfoil which was coated with a gum paper. You put the paper through a liquid gum and on that liquid gum paper

it run over on the tinfoil. There was a machine, a pulley-like machine and it went over and dried to tinfoil to that paper and dried the glue on the other side of the paper.

Q. 30. Then as I understand you when you cut the center spot out you cut it out of this strip of tinfoil?

A. Yes.

Q. 31. That had on the underside of it a coating of gum paper, is that right?

A. That is right.

Q. 32. And that gum paper stuck to the cap?

(Met pursuant to recess at 2 p. m.; present as before.)

Mr. Warland: If the Court please, this morning your Honor sustained Mr. Scull's objection to a question as to certain things that were on the market in 1916 on the ground that I had not pleaded it as an anticipation. Now, I overlooked at the time that the McManus patent was applied for in November, 1915, and what I want to ask him was something that was subsequent to the date of application, which I do not believe could be considered as a prior use.

Mr. Scull: What is the materiality?

Mr. Warland: The materiality is to show a continuous widespread use of these center spot caps by other manufacturers.

[fol. 196] The Court: But that does not go to laches, as they could not stop them until they had a patent.

Mr. Warland: I wanted to show the general use.

The Court: I do not see that at all, Mr. Warland. Here is the point. You pleaded prior use by two certain parties, that you can prove. Now, after the issuance of the patent, on the ground of laches, why, of course, you can show use by other people, but between the time that the application was filed and the time that the patent was granted you cannot show anything because they could not stop anybody, everybody in the world could have done it, everybody in the world could have utilized their invention between the time that the application was filed and the time that the patent was granted, and they couldn't have done a thing.

BERTHOLD NAGY, resumed the stand.

Direct examination.

By Mr. Warland (continued):

Q. 33. Did that gum paper stick to the cork disc?

A. Yes.

Q. 34. And have you got a strip of material like what was used then?

A. Something similar.

Q. 35. I understand that this is similar to the material Mr. McManus used in Hoboken in 1916, for making center spot caps?

A. Yes.

[fol. 197] Mr. Warland: I offer that in evidence.

(Marked Defendant's Exhibit F in evidence.)

Q. 36. Do you know whether Mr. McManus was doing very much business in center spot caps when you were with him?

A. Why, I do not know exactly; I think about 200 gross a week or a month, I do not exactly know, I do not pay attention so much.

Q. 37. Now, you say you put an equipment on an old Clark Johnson assembly machine for cutting the center spots?

A. Yes.

Q. 38. Did you ever put a similar attachment on a machine for the defendant Gutmann?

A. Yes.

Q. 39. When did you do that?

A. I think in 1924, the exact date I have here.

Q. 40. Now I show you two bills on your letterhead, one dated November 1, 1924, and the other November 20, 1924, made out to Ferdinand Gutmann Company; tell me what those bills are.

A. This bill was where he bought that attachment, the dies, the part called the dies to cut the center spot into the metal cap.

Q. 41. Did you put that on the Gutmann Company machine in November, 1924?

A. Yes. I did not put the attachment on, they put it on themselves, I just sold the attachment.

Q. 42. Did that attachment have a die for cutting center spots?

A. Yes.

Q. 43. Have you got one of those dies with you like that?

A. No, I haven't got it any more.

Mr. Warland: I offer those two bills in evidence.

(Marked Defendant's Exhibit G in evidence.)

[fol. 198] Q. 44. They paid those bills?

A. They did.

Q. 45. Before you put that attachment on the Gutmann machine did you ever see a machine making center spot crowns?

A. Why, I saw a machine in Pittsburgh which was similar to mine, but I didn't build the machine.

Q. 46. Whose machine was that?

A. That was Pittsburgh Stopper—Bamberger & Kraus.

Mr. Scull: That is not pleaded as a prior use.

The Court: No.

Mr. Warland: The question asked there hasn't to do with prior use.

The Court: It won't be considered as a prior use.

Q. 47. Did you put any dies on machines for cutting out center spots for any other manufacturer?

A. Yes.

Q. 48. Who was that?

Mr. Scull: When is all this?

Q. 49. When did you see that?

A. When I see that? I do not remember exactly, but before 1924.

The Court: Was it after 1920 or before 1920, that is the date we are concerned with?

The Witness: I couldn't remember exactly, but I am sure it was before 1924.

The Court: It was before 1924, but was it after 1920 or before 1920?

The Witness: I think it was after 1920.

The Court: All right.

[fol. 199] The Witness: I am not sure about the date, but I think so.

Q. 50. Have you got any bills from anybody or copies of bills you have rendered to anybody for putting in those center spot attachments?

A. I made a delivery of one to Al Mundette.

Q. 51. What is the date of that?

A. That was July 12, 1921.

The Court: All right.

Q. 52. Did you put a die for cutting center spots on one of Mundette's machines about the time of that bill?

A. Yes; I just sold the attachment, sold the attachment to Mundette. This is a duplicate bill.

The Court: That refreshes your recollection?

The Witness: Exactly.

The Court: From that bill?

The Witness: Exactly.

Q. 53. Now here you put an attachment for cutting center spots on a machine within the last year or two, for anybody?

A. Yes, I did, many of them.

Q. 54. Do you remember putting one on for a Mr. Fries of the Crown Cap Manufacturing Company?

A. For Mr. Fries I made a complete machine. I overhauled a Johnson machine and I put up an attachment for putting that center spot on the crown.

Q. 55. When was that?

A. That was May 19, 1933.

[fol. 200] Q. 56. Did you put any other attachment on that machine?

A. Which machine do you mean?

Q. 57. For Mr. Fries.

A. I made a cutting attachment on it, and I made a machine to produce the crown in one operation.

Q. 58. You have been to the defendant's factory, the Ferdinand Gutmann Company, haven't you?

A. Lately, about a couple of weeks ago.

Q. 59. And you have been doing work for them off and on all the time?

A. Yes.

Q. 60. And do you know the type of machine they have been using for the last two or three years, for making caps, covered by Mr. Cohn's patent, do you know that machine?

A. Yes, I saw it the last time I was up at their factory.

Q. 61. Like this shown in the patent to Cohn No. 1,921,808?

A. Yes, sir, but this is not the machine that shows on the picture here. I cannot tell you anything by this here (indicating).

Q. 62. Well, how does that machine in the Gutmann factory work, that is shown in that patent?

A. How I saw it, first they put glue in the cap and they heat it—they heat up the crown with gas and after the crown was heated they put the cork in it and after the cork was in the cap they put the tin-foil the same as I did with ours.

Q. 63. It is all done in one machine?

A. One operation, yes, sir.

Q. 64. Was the machine you made for Mr. Fries of the Crown Cap & Manufacturing Company the same machine and working the same way as the machine that Gutmann has?

A. The machine is about the same, but the work is done differently. First the machine I built put the glue in the cap and put the cork in the cap immediately and after put the tin center on and then heated altogether, the tin center, the cork and the cap.

[fol. 201] Q. 65. But the putting of the cork disc in the cap and the putting of the center spot on was all done in one machine?

A. One machine, yes, sir.

Cross-examination.

By Mr. Scull:

X Q. 66. When you said you sold this attachment to Mr. Fries, who is this Mr. Fries?

A. Mr. Fries was the owner of the Crown Cap Manufacturing Company.

X Q. 67. It is not the Crown Cork & Seal Company, is it?

A. No, the Crown Cap Manufacturing Company.

X Q. 68. Did you ever see that machine in operation at the Crown Cap Manufacturing Company?

A. Why I built it, I built the whole machine and of course I did.

The Court: Did you see it in operation?

The Witness: In operation. I put it up for them and I demonstrated it to them before they paid for it.

X Q. 69. When was that?

A. I just gave you the date, it was 1933.

X Q. 70. That was May 19, 1933, the date of your bill?

A. Well, it is not a bill, it is a duplicate.

X Q. 71. But I say that is the date, May 19?

A. Yes.

X Q. 72. 1933?

A. Yes.

X Q. 73. And how much later than May 19 did you see it in operation there?

A. I think a few days later. As soon as I delivered it I demonstrated it.

X Q. 74. And then after that you did not see it?

A. No.

[fol. 202] X Q. 75. Those attachments you say you sold were simply a punch and a means for operating it and a feed for a center spot foil, is that what you made?

A. Yes.

X Q. 76. What mechanism was there in the attachments that you say you made?

A. This is a new kind.

X Q. 77. I am not talking about the one you sold to Fries, I am talking about the earlier ones.

A. The same feed was on it what we used to have for feeding resin paper to the machine. In other words this attachment takes place on the machine where we used to put on the cork. The feed we took off from the machine and we put it in the same place where we used to put the cork in it and we used it for the tin center. In other words the machine is here, (indicating.) and you put the cork in first or the paper in first and then you put the cork in. Now we would change it and put this paper head here and use a thin paper feed, a resin paper feed.

X Q. 78. And how did you wet the adhesive on that strip?

A. How did I what?

X Q. 79. How did you wet the adhesive on that strip?

Mr. Warland: Which strip are you talking about?

X Q. 80. Mr. Nagy, just to straighten out your counsel, you told us of selling some dies for cutting the center spots, to Gutmann, in 1924.

A. That is right.

X Q. 81. That is what I am talking about.

A. Yes.

X Q. 82. What I want to know is on the machine to [fol. 203] which that attachment was applied how was the adhesive for the spot wet?

A. Why, I think they used—I did not see the machine afterwards because I told you I just sold the attachment and I did not know what they used on it.

X Q. 83. Now in this McManus machine that you say you saw in use in Hoboken, for putting on center spots.

A. Yes, sir.

X Q. 84. What kind of adhesive was he using?

A. He wet the cork with a sponge before we put the tin center on.

X Q. 85. I think you said they sold about 200 gross a month?

A. I don't know exactly; I think about 200 gross a month or a week, I don't know exactly. I know that a 200-gross case was shipped out as soon as it was ready. It took about a week at that time to make 200 gross and the machine was working steady.

X Q. 88. On this machine that you built for Mr. Fries.

A. Yes.

X Q. 87. About how long would it take to make 200 gross?

A. Oh, when I delivered it about 250 per minute, and you must figure it out.

X Q. 88. It would take around two hours for 200 gross, is that right?

A. About two to two and a half hours.

X Q. 89. In other words, on the machine here in 1933 you are doing the same thing in two hours that it took a week to do back in 1916, when you were with McManus, is that right?

A. Yes, about.

X Q. 90. Why is the difference?

A. Why, that time was new and we just run the machine so slow, and now it is not new.

X Q. 91. Why didn't you run them any faster in 1916?

[fol. 204] A. Why, I think the material wasn't good enough to stick as well as later on. We improved this a few weeks later to go ahead faster.

X Q. 92. If you speeded it up a little bit the spots got out of center?

A. Not was thick enough, because at that time the gum was not good enough. A little later, a few weeks later, I get some better gum, I don't remember, so long time, but we speeded up the machine all right. The first time it didn't

prove satisfactory at the high speed, and we tried it the second time and the fault was the gum.

X Q. 93. Do you know anybody that is sticking the spots on by means of gum now?

A. No, I don't know exactly.

X Q. 94. When was the last time that you saw anybody trying to stick spots on by means of gum?

A. I don't remember; you know this business came out in the last few years, and in that time they have changed it.

X Q. 95. When you were with the International did they make any spot crowns?

A. No, I don't remember; I don't think they did.

X Q. 96. Did you see any attempt to make spot crowns there?

A. No.

X Q. 97. What was the object of putting this paper back of the tin-foil on the McManus spot?

A. I believe stick to the cork, the tin-foil stick to the cork.

X Q. 98. Did McManus ever try it, to your knowledge, with the cement directly on the tin-foil without the paper?

A. I don't know. As far as I know, never did.

X Q. 99. This McManus machine, as I understand, when you went there, wasn't working satisfactorily?

A. No.

X Q. 100. That was in 1916?

A. Yes.

[fol. 205] X Q. 101. Then you put your brains on it and you made it work a little more satisfactorily?

A. Not the same machine; I made another machine.

X Q. 102. What was the difference between the two?

A. My attachment went into the cap to make it center. Before it don't have no chance to center.

X Q. 103. Before that they had been going out of center?

A. Yes, before, so in my machine I put the cap in and it centralized the cap.

X Q. 104. Whatever happened to that machine that you made?

A. I don't know. When I left there, working, working condition.

X Q. 105. When did you leave there?

A. In 1917; I work about a year and a half in McManus for new process about a year and a half or so.

X Q. 106. Now you are making center spot machinery for other manufacturers, aren't you?

A. Not machinery, just the die, the attachment.

X Q. 107. The attachment, and you got notice of infringement from the Crown Cork & Seal Company last spring?

A. Yes, I have right here.

X Q. 108. And they notified you that you were infringing under what patents?

A. There is the letter, here is the letter, and I wrote them back it has nothing to do with crown manufacture, it has nothing to do with any of those patents.

X Q. 109. Just read what you wrote to us.

Mr. Warland: Why not read your letter?

The Witness: You had better read it. Let somebody else read it. There is my answer on the yellow paper.

X Q. 110. You have handed me a letter dated January 15, [fol: 206] 1935, on the letterhead of Cushman, Darby & Cushman, which calls your attention to the Warth reissue patent 19,117, and the Warth patent 1,967,195, and states that you are building machines for concerns not licensed by the Crown Cork & Seal Company, and that such machines are intended for practicing the methods covered by these patents, and that you are of course liable as a contributory infringer. That is the fact, isn't it?

A. Well, that is what you said, but I do not agree with them.

X Q. 111. And you replied to that?

A. The yellow paper.

X Q. 112. On February 8, 1935, in which you said, "First of all, I am not a crown manufacturer,"—

Mr. Warland: Read the whole letter.

Mr. Scull: You can do that later if you want to. "First of all, I am not a crown manufacturer, and the spot machine which I work on belongs to a concern who takes care of patent litigation, if any. Secondly, I have my own spot machine. Of course, it is not yet on the market, but when I do put it on the market, I shall take care so there will be no infringement on your client's patents."

X Q. 113. That is your letter?

A. That is right.

X Q. 114. Who is this concern that takes care of your patent litigation, that you speak of?

Mr. Warland: I do not think that has anything to do with the issues.

The Court: No, I do not think so.

Mr. Scull: I just want him to elucidate what he is talking about.

[fol. 207] The Court: I do not think it makes any difference. You are not suing him now.

X Q. 115. It is the fact, Mr. Nagy, that in your testimony here today you are interested in having these patents in suit here invalidated, aren't you?

A. Will you tell me again? I don't know. I don't understand very well what you mean.

(Last question repeated by the reporter.)

A. I don't answer that here; that is my business—

The Court: Let him answer it; it goes to his credibility.

Mr. Warland: He doesn't know what "invalidated" means.

The Witness: I do not want to answer; this is perhaps against my business.

X Q. 116. What?

A. This is against my business.

X Q. 117. These patents are against your business?

A. Not patents, but this question.

X Q. 118. These patents—

A. If you will make it plainer.

X Q. 119. You know what patents are involved in this suit that is going on at the present time?

A. I don't know; I don't know several patents going on here, I don't have no time to look into it, I am not interested to know anything about these patents, I just come here as a witness.

X Q. 120. You are not interested in seeing these patents we are suing on here, involved in this suit on trial here, are knocked out?

A. I have nothing to do with it; I am not interested in it.

[fol. 208] X Q. 121. You are not interested?

A. Not interested at all.

X Q. 122. You know, don't you, if the patents were invalidated, then this notice of infringement wouldn't amount to anything?

A. No. First of all, my patent had no infringing with this, what you are now doing, and secondly, you send me

a letter about my machine is infringing, I don't pay attention to it because I made the same machine which I made in 1916.

Redirect examination.

By Mr. Warland:

R. D. Q. 123. These machines that you made in 1916 for cutting spots, what were they, were they what is known as the Clark Johnson assembling machine?

A. Yes, sir.

R. D. Q. 124. And that just puts a crown cap in the shell?

A. Yes.

R. D. Q. 125. Now as I understand it you put an attachment on that old machine for cutting center spots?

A. Yes.

R. D. Q. 126. And that is the same thing you put on Gutmann's machine in 1924?

A. Yes.

R. D. Q. 127. You have been making those ever since 1916, putting those attachments on?

A. Yes.

R. D. Q. 128. You never had any notice of any infringement until you got this letter?

A. Yes, I got one from Mr. Johnson.

R. D. Q. 129. And you were subpoenaed to come down here?

A. Yes, sir, right here.

R. D. Q. 130. Now have you that letter from Mr. Johnson?

A. Yes, sir (handing to counsel).

Mr. Warland: If your Honor pleases, I will read this letter to save the witness that trouble.

[fol. 209] The Court: Very well.

Mr. Warland: It reads as follows; it is on the letterhead of "John O. Seifert and John A. Seifert, patents and patent causes, 277 Broadway, New York.

"Mr. B. Nagy, 125 Nostrand Avenue, Brooklyn, New York.

DEAR SIRs:

"My client, Mr. John A. Johnson of the A. Johnson Machine Works has informed me that he has been advised that

you are contemplating making and marketing machines for the assembling of what is commonly known as 'Spot Crown Closure Caps' for receptacles and to also rebuild and convert machines heretofore adapted for the assembling of sealing pads in crown closure caps to adapt such machines for the assembling of a spot of impervious material upon the sealing pad in crown closure caps and embodying in such machines features of invention of a machine which is being manufactured and marketed by the A. Johnson Machine Works under and covered by Letters Patent of the United States No. 1,852,578, issued to Mr. Johnson April 25, 1932, for 'Method of and apparatus for assembling linings in closure caps.'

"The building or rebuilding of machines by you for assembling spots of impervious material upon the sealing pads [fol. 210] of crown closure caps as it is understood you contemplate building would be an infringement of the above-mentioned Letters Patent No. 1,852,578, and will make you liable for a suit for infringement and damages. Notice is hereby served on you that you refrain from building or rebuilding of machines in infringement of the above-mentioned Letters Patent 1,852,578.

Yours very truly, John O. Seifert."

R. D. Q. 131. Did you make any answer to that letter?

A. No, sir.

R. D. Q. 132. What is the date of that letter?

A. May 17, 1933.

R. D. Q. 133. Just what time did you leave the International Cork Company where Mr. Alberti was?

A. I don't know the date, but about 1913, I am sure about that.

R. D. Q. 134. What time in 1913?

A. About July, June or February.

R. D. Q. 135. Did you leave there before you got the patent of yours or after you got the patent?

A. Which patent do you mean?

R. D. Q. 136. This patent No. 1,063,720. Are you the Nagy mentioned in that patent (handing to witness.)?

A. This is my patent, yes, sir.

R. D. Q. 137. Did you leave the International before this patent was issued to you?

A. Before this patent was issued.

R. D. Q. 138. Now this machine you made for Mr. Fries of the Crown Cap Manufacturing Company, that I understand it was the assembling of the crown and putting the spot and it was all done in one machine?

A. Yes.

[fol. 211] R. D. Q. 139. Just the way they do at Gutmann's?

A. Yes.

R. D. Q. 140. Do you know what became of the Crown Cap Manufacturing Company?

A. So far as I know they sold out to the Crown Cork & Seal Company.

Mr. Scull: I object to that as hearsay.

The Witness: That is what I heard.

The Court: Strike it out.

You don't know, do you, just somebody told you?

The Witness: I heard they were sold to the Crown Cork & Seal.

The Court: Strike it out.

R. D. Q. 141. I show you a patent to Warth 1,899,783. Will you look at Fig. 3 of that patent and you will see a strip marked EE and a strip marked E, the top one is foil and the lower one is gutta percha. Did you ever see crown caps made like that?

A. Yes, I saw a machine to operate on this kind of a method at Bamberger & Kraus in Pittsburgh.

R. D. Q. 142. And about what time was that?

A. In 1924.

IRVING P. MACAULEY, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What business are you in, Mr. Macauley?

A. Thin gauge metals, commonly known as foil.

[fol. 212] Q. 2. How long have you been in that business?

A. Since 1919.

Q. 3. Under what name, or what concern are you connected with now?

A. The Reynolds Metal Company.

Q. 4. Is that concern the successor of any other company in the same line of business?

A. They bought the business of that other concern out.

Q. 5. What was the name of that other concern, the Beechnut Foil Company?

A. The Beechnut Foil Company, yes.

Q. 6. You were with them before they were bought out?

A. Yes.

Q. 7. You were with them continuously since 1919?

A. I was with the Beechnut Company from 1919 to 1928 when they were bought out.

The Court: What is the name of your concern now?

The Witness: Reynolds Metal Company.

Q. 8. Have you done any business with the defendant Ferdinand Gutmann Company?

A. Yes.

Q. 9. Have you sold them any goods?

A. Yes.

Q. 10. What kind?

A. Both tin and aluminum foils.

Q. 11. I show you a confirmation order of the Beechnut Foil Company, dated December 31, 1924, and I ask you what that was for?

A. That is for pure tin-foil of a given gauge, .0045.

Mr. Scull: How many pounds?

The Witness: Several small rolls, I believe.

Q. 12. Do you know what Gutmann bought that for?

A. Only I have my own ideas.

Q. 13. Did they tell you at the time what they bought it for?

[fol. 213] Mr. Scull: I object to that, your Honor.

The Court: He does not know.

Mr. Warland: He said that he had his own ideas and I now ask him whether they told him at the time.

The Court: And he said no. It would not be competent what they told him, anyhow.

Mr. Warland: I offer this confirmation order in evidence.

(Marked Defendant's Exhibit H in evidence.)

Q. 14. I show you a letter on the letterhead of Beechnut Foil Company, dated January 17, 1925. Are you the Mr. Macauley who signed that letter?

A. That is right, yes, sir.

Q. 15. Please read that letter.

A. "This will acknowledge receipt of yours of January 16th relative to the gutta percha delivered to us. Your comments have been noted, and whatever is left of this material after mounting on the foil will most certainly be returned. Assuring you of our best attention to the matter, we are, Very truly yours, Beechnut Foil Company."

The Court: Who is this addressed to?

The Witness: Beechnut Foil Company.

The Court: It was addressed to them?

The Witness: This was addressed to the Ferdinand Gutmann Company.

The Court: That is what I want to know.

Mr. Warland: I offer that letter in evidence.

(Marked Defendant's Exhibit I in evidence.)

[fol. 214] Q. 16. What do you mean there by mounting on the foil?

A. In this particular instance it was sheet gutta percha mounted by pressure to the foil.

Q. 17. Do I understand that the Ferdinand Gutmann Company sent you the gutta percha and you mounted it on this foil, is that what happened?

A. That is right.

Q. 18. I show you a confirmation order on the letterhead of Beechnut Foil Company, dated January 12, 1925, addressed to Ferdinand Gutmann & Company, the defendant in this case. Did you deliver the goods in accordance with that order?

A. I think that could only be substantiated by an invoice which would indicate delivery.

Q. 19. Does this apply to that order, or does this apply to the previous one?

A. This doesn't apply.

Q. 20. I show you confirmation dated January 17, 1925, bearing No. 6,936, and I also show you an invoice from the Beechnut Foil Company of the same date, bearing the same number, 6,936.

A. That is correct.

Q. 21. Did you deliver those goods to Gutmann as called for in that invoice?

A. Yes.

Q. 22. Did you deliver considerable quantities of other tin-foil at various times running through 1925 and subsequently on which you had put the gutta percha which they sent you?

A. I would really have to have a statement like that substantiated by—Ferdinand Gutmann & Company, we sold them a great deal of foil. How much of that, or what proportion, was mounted on gutta percha, is a matter that the files could only reveal.

[fol. 215] Q. 23. I show you invoices dated February 21, 1925, February 19, 1925, February 17, 1925, February 5, 1925, two on February 5, 1925; will you please look at those and see if those refresh your recollection?

A. Yes.

Mr. Warland: I will offer this order and invoice together.

The Court: That is an invoice of what date?

Mr. Warland: Of January 22, 1925.

The Court: It is received.

(Marked Defendant's Exhibit J in evidence.)

The Court: What about these the gentleman has?

Q. 24. What about those? Did you ship the goods mentioned and described in those invoices to the defendant Gutmann on or about the dates mentioned in those invoices?

A. Yes.

Q. 25. And they paid you for them in the regular course of business?

A. I am pretty sure.

Q. 26. Could you say whether any of these, whether those invoices you have just handed me apply on this confirmation dated January 30, 1925, which calls for strictly pure tin-foil 45/1000 of an inch thick mounted on gutta percha inter-leaved with wax paper in rolls one inch wide, core 1-9/32 of an inch in diameter?

A. That could be checked by the corresponding number on the invoices. Those all apply to this original confirmation.

Mr. Warland: I offer in evidence confirmation orders and [fol. 216] invoices from the Beechnut Foil Company to the

defendant, Ferdinand Gutmann & Company, five in number, running from December 31, 1924, through February 21, 1925.

(Marked Defendant's Exhibit K in evidence.)

Q. 27. I show you letters dated January 24, 1929, and January 30, 1929, and I ask you what those refer to.

A. These refer to aluminum-foil mounted to gutta percha in which we state that some experimenting had been done in our Louisville plant. We quote prices in this later letter and we mention sending samples of the mounted gutta percha. This is signed by a salesman in our organization, Mr. Cage.

Mr. Warland: I offer those two letters in evidence.)

(Marked Defendant's Exhibit L in evidence.)

Q. 28. I show you letters and invoices from the Reynolds Metal Company running through February 8th, 1929, to March 12th, 1929, with copies of letters written by the defendant to you and I ask you if the Reynolds Metal Company sold and delivered the goods mentioned in those letters and invoices to the defendant, the Ferdinand Gutmann Company on or about the dates mentioned in the invoices?

A. That is correct. We invoiced and shipped that particular one (indicating). There is no supporting invoice on this particular one (indicating).

Mr. Warland: I offer the letter of March 12th and the invoice in evidence.

(Marked Defendant's Exhibit M in evidence.)

[fol. 217] Q. 29. What about those others, did you ship the goods called for in those invoices?

A. I cannot state without the invoice.

Q. 30. Didn't I hand you the invoices?

A. Not this particular one.

Q. 31. I hand you a number of invoices running from June 29th to August 29th and I ask you to tell me whether you shipped the goods mentioned in those invoices to the defendant the Ferdinand Gutmann Company?

A. This is a different product that we have been talking about.

Q. 32. Is this plain aluminum-foil?

A. This is unmounted.

Q. 33. Did you ship the plain aluminum-foil called for in those invoices?

A. Yes.

Mr. Warland: I offer these invoices in evidence.

(Marked Defendant's Exhibit N in evidence.)

Q. 34. Now subsequent to 1929 and up to the present time have you sold to the Ferdinand Gutmann Company?

A. Yes.

Q. 35. What is that you have in your hand?

A. This is a confirmation or letters pertaining to the order but no confirming invoice. There is nothing to indicate that the goods were shipped rather.

Q. 36. Is this invoice attached to Defendant's Exhibit M the one that you refer to in this letter of February 22nd?

A. That is the one. That was shipped.

Q. 37. That was shipped to Gutmann & Company on that date?

A. Yes.

Mr. Warland: I offer in evidence the letters dated Feb-[fol. 218] ruary 22, 1929, and February 8, 1929, from the Reynolds Metal Company to Ferdinand Gutmann.

(Marked Defendant's Exhibit O in evidence.)

Q. 38. What is the width of this metal foil that you sold to the Gutmann Company, was it all one width or did it vary?

A. My statement can be supported by the evidence in the form of those invoices, but as I recall, it was from one inch to 26 inches or 25, I am not quite sure of that.

Q. 39. Did they tell you why they wanted it cut in one-inch strips?

Mr. Scull: I object to that, your Honor, that is hearsay.

The Court: I do not see how he can testify as to that. He can state the fact that he knows they did sell it in certain sizes.

Q. 40. As I understand your testimony, you know, and the invoices show, that you did sell some of this in one-inch strips and some in 25 or 26-inch strips?

A. I believe that is correct.

Cross-examination.

By Mr. Scull:

X Q. 41. Mr. Macauley, I call your attention to this Exhibit H which, as I understand it, is simply the confirmation of a sale of a quantity of pure tin-foil, the weight not specified, but it was to be in eight small rolls, $1\frac{1}{8}$ inches wide, that is correct, is it?

A. The weight is specified; the weight is the thickness.

X Q. 42. But I meant the total weight that was to be supplied is not specified?

A. That is correct.

[fol. 219] X Q. 43. Now on this invoice 538, dated January 19, 1925, my understanding is that this shows a shipment of one package of pure tin-foil one inch wide, the shipment having been made on January 13, 1925, that is correct, isn't it?

A. Yes.

X Q. 44. There is nothing on that to indicate that that is coated with gutta percha?

A. No.

X Q. 45. In fact, the order to which it relates, namely, 6,811, states nothing about gutta percha, that is the one you just saw?

A. Yes, that is correct, yes.

X Q. 46. Now, then, this letter of January 17, 1925, which forms Exhibit I, refers to a letter which apparently you had received from the Gutmann Company under date of January 16th. Have you been shown that letter?

A. I do not recall whether it was in the other exhibits or not. I do not recall having seen the letter to which this is a response.

X Q. 47. Keeping in mind the fact that the general order for an indefinite quantity of pure tin-foil was placed under date of December 31, 1924, that a package having the same order number, 6,811, as Exhibit H, was shipped on January 13, 1925, and that this letter, Exhibit I, which was shown you, is dated January 17, 1925, does that refresh your recollection that after this tin-foil was received by Gutmann on January 13, 1925, that they sent it back to you to be coated with gutta percha?

A. That doesn't refresh my memory; I am very vague on that. That would be difficult to do from a manufacturing standpoint. However, it would be entirely possible.

[fol. 220] Redirect examination.

By Mr. Warland:

R. D. Q. 48. Would the price on these various invoices which you have put in evidence have any bearing on the question of whether the metal foil was coated with gutta percha or whether it was not?

A. I would say it would be a pretty good indicator.

R. D. Q. 49. Can you tell by looking at these various invoices from the prices, whether some of them had gutta percha mounted on it or not?

A. I can. How would you like to have me designate this?

R. D. Q. 50. If you would be just so good to read it to the stenographer which is gutta percha and which is not.

A. By the number?

R. D. Q. 51. By the number or letter; I think they are all letters.

A. This is an invoice number; you mean that?

R. D. Q. 52. All right, but hasn't that a letter on it, an exhibit letter? Maybe that one has not.

A. I do not see one. Oh, Exhibit J, it says on the invoice gutta percha. Exhibit M is also gutta percha. Exhibit O refers to gutta percha. These are all unmounted foils, this group, except the last one, and that is pretty hard to state. It says plain aluminum-foil.

R. D. Q. 53. What exhibit is that?

A. Exhibit N. Exhibit I, it refers in the letter to gutta percha mounting, and Exhibit K is gutta percha mounted. Exhibit H is unmounted. These invoices pertain to Exhibit K. (Indicating.)

R. D. Q. 54. Were you subpoenaed over here?

A. Yes, sir.

[fol. 221] JOHN A. JOHNSON, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What is your business, Mr. Johnson?

A. I got a machine shop, building machines.

The Court: What is that?

The Witness: I build machines in a machine shop.

Q. 2 For what purpose principally?

A. I specialize in machines for manufacturing bottle corks and what we call crown corks.

Q. 3. I show you a patent No. 1,852,578, dated April 5, 1932.

A. Yes, sir.

Q. 4. Issued to Mr. J. A. Johnson.

A. Yes.

Q. 5. Are you the Mr. Johnson mentioned in that patent?

A. That's me.

Q. 6. How long have you been in this business of making machines for crown caps?

A. 33 years.

Q. 7. Did you sell a machine like that shown in the patent just handed to you to the defendant the Ferdinand Gutmann Company?

A. Could I see that a minute again? I do not seem to recall that. This is what we call a winding machine and I cannot recall right away whether I sold one to Gutmann's but I think I did.

Q. 8. Mr. Johnson, just a minute, this machine of your patent No. 1,852,578, what is that for, a spotting machine or a winding machine?

A. It is for pasting together the tin-foil or paper and [fol. 222] the gutta percha tissue, for pasting them two together. We call it a winding machine.

Q. 9. Will you just look at your patent No. 1,852,578 again?

A. That is what we call a spotting machine.

Q. 10. Now, did you sell a spotting machine like that shown in that patent No. 1,852,578 to Ferdinand Gutmann?

A. Yes.

Q. 11. I show you a bill dated August 31, 1928, made out to Fedinand Gutmann and Company. Did you sell them the machine called for by that bill?

A. Yes, that is one of mine.

Q. 12. And would you call that a spotting machine made like the patent that I just showed you, is that right?

A. That is right.

Q. 13. Did you deliver it about the date mentioned in that bill, August 28, 1928?

A. If it is on the bill that was the delivery date. I have the two here, that is the copies.

Q. 14. They paid for this machine?

A. Yes.

Mr. Warland: I offer this bill in evidence.

(Marked Defendant's Exhibit P in evidence.)

Q. 15. I show you four bills running from September 17, 1928, to April 30, 1929, for assembling machines, made out to Ferdinand Gutmann & Company, and ask you if you sold and delivered to them the machines mentioned in those bills on the dates mentioned in the bills?

A. Correct.

Q. 16. You did?

A. Yes.

Mr. Warland: I offer those four bills in evidence.

(Marked Defendant's Exhibit Q in evidence.)

[fol. 223] Q. 17. I show you four bills dated from May 16, 1933, to June 19, 1933, made out to Ferdinand Gutmann & Company, and ask you if you sold them those machines on the dates mentioned in the bills?

A. That is correct.

Q. 18. And you delivered them about the dates set forth?

A. Yes, delivered maybe a day or two before that, or maybe a week before.

Q. 19. Those bills that I have just shown you and which you say you delivered to Gutmann were for spotting machines like those shown in your patent No. 1,852,578?

A. No, they are not the same machines; there was only two delivered of that kind that shows on this patent.

Q. 20. Which two are those?

A. That was in 1928.

Mr. Warland: I offer in evidence the four bills last mentioned.

(Marked Defendant's Exhibit R in evidence.)

The Witness: This is what we call combination machines.

Q. 21. Which are you speaking of now, the last ones?

A. The four last, the eight last; there was four of each, there was eight bills altogether, and there was one before. That was for the spotting machine that this patent is on,

one of them; the other eight ain't, that is a combination machine where we assemble the crowns in the same machine as we put on the spots.

Q. 22. But is the spotting mechanism and the method of cutting out the spot the same in these combination machines as it is in your patent?

A. That is right; it is the same thing as it is in that patent.

[fol. 224] Q. 23. The only thing is, in these last four machines—

A. Last eight machines, I combined the two machines.

Q. 24. You combined the two machines?

A. Yes.

Q. 25. So the whole operation can be done in one machine?

A. In one machine, that is right.

Q. 26. Now I show you a bill dated July 31, 1928, made out to Ferdinand Gutmann, for one tin-foil machine with hopper, \$1200; what is that?

A. That is the same as the other, the same as the one that this patent application, the patent is for, exactly the same, except that one was \$950 and the other was \$1200, because it is additional because it had a hopper to it.

Q. 27. This machine of July, 1928, you say that was made like the patent. Do you remember whether that machine had a drum or collecting drum on that?

A. No, it had no drum on it.

Q. 28. Was there any trouble with Gutmann, any trouble in the operation of that machine?

A. No, it wasn't; I just had two drums inserted to settle it because after the spot was inserted he found it wasn't smooth enough, and I had made machines before with drums on, for assembling machines. I had made those for thirty-three years, and they had drums on all of them, so I inserted smaller drums in this machine so that the tin-foil would come out smoother.

Q. 29. Otherwise it was just like the patent?

A. Yes.

Mr. Warland: I offer this in evidence.

(Marked Defendant's Exhibit S in evidence.)

Q. 30. That machine in the bill of July 28, you say was that a drum. Do you remember whether afterwards that [fol. 225] machine was changed to a lining machine and

I show you a bill and I ask you whether that refreshes your recollection?

A. No, that ain't the machine, I don't think.

Q. 31. I show you a copy of a letter from Gutmann to you, dated February 18th, 1931, and I ask you if that refreshes your recollection on that machine?

A. I cannot recall if that was the machine. In my opinion it ain't the same machine.

Q. 32. Well, do you recall whether when you sold them that machine in July of 1928, that first machine, did they tell you they had any trouble with the spots coming off or anything of that sort?

A. They may have—

Mr. Scull: Just a minute. I object to that, if your Honor pleases.

The Court. Let them testify if they had trouble. This is not the proper witness for that. I will sustain the objection.

Q. 33. Do you know whether that first machine that you delivered in 1928 worked satisfactorily on that?

The Court: Of your own knowledge do you know?

The Witness: From my own knowledge it must have been running, otherwise I always hear a complaint from customers if they don't run properly.

Q. 34. Did you get any complaint mentioned in this letter that I show you, dated February 18, 1931, asking you to [fol. 226] change it to a lining machine?

A. It may be that machine but I am not positive.

Q. 35. You, of course, went to the defendant's factory about the time that you delivered this machine, didn't you?

A. No, I would say I was very seldom in any of the factories. I have been in Gutmann's factory, sure I have on two or three occasions.

Q. 36. Do you remember going there in 1928?

A. What year I cannot say: I think I was in there probably that year but I have been in there three or four times.

Q. 37. Now, did you sell any machines like those shown in your patent here, 1,852,578, to Crown Cork & Seal Company?

A. Yes.

Q. 38. When did you sell those?

A. In 1929.

Q. 39. Have you got any orders from the Crown Cork & Seal Company for those machines?

A. Yes, I have.

Q. 40. Will you let me see them, please?

A. There is the shipping dates and copies of the invoices.

Mr. Warland: I offer these orders from the Crown Cork & Seal Company and the copies of invoices from the Johnson Machine Works for five machines running from March, 1929, to July 3rd, 1929, in evidence.

(Marked Defendant's Exhibit T in evidence.)

Q. 41. Do you own this patent now, No. 1,852,578?

A. No, I sold it.

Q. 42. Who did you sell it to?

A. The Crown Cork & Seal Company.

Q. 43. When did you sell it?

A. It was in 1933.

[fol. 227] Q. 44. What time in 1933?

A. December 12, 1933.

Q. 45. And before you sold it did you have any trouble with the Crown Cork & Seal Company?

A. Well, I did not have any trouble with them, I would not say. They told me that they thought my patent was infringing some of their earlier patents and we came to an agreement and I sold it to them, I did not want to have any court proceedings or anything about it and they give me the exclusive right to make the machines, so I thought it was best to avoid any troubles that way.

Q. 46. Well, you had some little trouble in the Patent Office, didn't you?

A. Yes, the Patent Office notified me that they thought I was infringing or something like that.

Q. 47. Do you remember anything about an interference proceeding in the Patent Office about this patent of yours, 1,852,578?

A. Yes, I guess there was some interference.

Q. 48. Who was your lawyer in that interference proceeding?

A. Mr. Seifert was the name, John C. Seifert.

Q. 49. Do you remember making an affidavit in that proceeding in the Patent Office on what is called a motion to dissolve on the ground of prior public use, do you remember any such affidavit as that?

A. That referred to the public use proceedings, didn't it?

Q. 50. Yes.

A. My attorney, John Seifert, he cancelled that after I sold, or withdraw that from the Patent Office after I had sold the patent.

Mr. Warland: Would you be kind enough to produce those, Mr. Scull?

(Mr. Scull produces papers.)

[fol. 228] Q. 51. I show you an affidavit dated October 31, 1933, and ask you if you signed that affidavit?

A. That is my signature.

Q. 52. I notice you state in this affidavit you are the patentee in this patent No. 1,852,578, the one I have just shown you.

A. Yes.

Q. 53. And you say there that prior to and since July 17, 1928, there was constructed in the shop of the A. Johnson Machine Works, Inc., machines for the spotting of crown bottle caps in accordance with the method set forth in Claims 28, 29 and 30 of said patent, said machines being constructed in all essential details as illustrated in the drawings forming a part of said letters patent and functioning as described in the specification thereof; that said machines for carrying out the method of Claims 28, 29 and 30 of said patent have been in commercial and public use for more than two years prior to April 4, 1933, by Ferdinand Gutmann & Company, 168-39th Street, Brooklyn, New York; the Arrow Bottle Cap Corporation, 410 Morgan Avenue, Brooklyn, New York, and the Crown Cork & Seal Company, Inc., Baltimore, Maryland, the assignee of Albin H. Warth, whose application Serial No. 664,410 is involved in interference with patent No. 1,852,578 issued to me.

That statement of yours, of course, was true?

A. Yes, must be true when I signed it.

Mr. Warland: I offer the petition to institute public use proceedings filed by Mr. Johnson in this interference in evidence.

Mr. Scull: No objection.

(Marked Defendant's Exhibit U in evidence.)

[fol. 229] Q. 54. Now, then, after you sold patent No. 1,852,578 to the Crown Cork & Seal Company, your attorney kept those papers back, is that right?

A. Yes, he kept them back.

Q. 55. Do you know what happened to the interference after that?

A. Well, I presume it was set aside, they settled the whole thing—

Mr. Seull: Your Honor, that is all a matter of record.

The Court: Naturally he does not know.

Mr. Warland: I will prove all that by—

The Court: You can prove it by somebody that knows.

Mr. Warland: By the documents in the interference record.

The Court: You sold the patent and got the money, and that is all you know.

The Witness: That is all I know.

The Court: That is all you are interested in?

The Witness: That was all.

Q. 56. How long have you known of center spot crowns being on the market?

A. Well, I don't know exactly how long they have been on the market; I couldn't answer that. I heard over night—

The Court: Do not tell us what you heard over night, only tell us what you know.

Q. 57. Do you remember when you first saw any?

A. In the beginning of 1927, that was the first time I started to take any interest in making machines for them.

Q. 58. Did you see any center spots before then?

[fol. 230] A. I do not think I did, because they were not used very extensively at that time, before that time.

Q. 59. How do you know they were not used if you don't take any interest?

A. I didn't take any interest; I didn't see any, and of course if you do not see any, I suppose I didn't buy enough beverages to find out where they were or who was using them or anything much—

The Court: All that doesn't mean anything, he doesn't know, so what is the use? Why he didn't know isn't very material.

The Witness: They may have been used——

The Court: Wait a minute. Do not tell us any more because I am going to strike out what you have said already.

The Witness: But there is one thing I would like to know——

The Court: I know, but you answer questions; that is all you have to do.

The Witness: This is different——

The Court: Wait a minute. You answer questions, do not volunteer.

Q. 60. When you started to build the first spotting machine, that was in 1927 or 1928, wasn't it?

A. 1927 about, in the beginning of 1927.

Q. 61. Did you see any crown caps with center spots on before you built that machine?

A. Yes, about 27 years ago I made a machine for a gentleman by the name of Stewart for inserting the spots by a different method.

Q. 62. I show you the White Rock cap marked Plaintiff's Exhibit 28.

A. This is a cap that I made the first machine to insert them.

[fol. 231] Q. 63. Now, just a minute, I ask you when you first saw caps like that.

A. I would say it is about 27 years ago.

Q. 64. And did you make a machine for building those caps?

A. I made one.

Q. 65. Who did you make that for?

A. A gentleman by the name of Stewart.

Q. 66. Where was he?

A. Up at Millis, Massachusetts. He was not up there then, he was in Brooklyn, somewhere, but he moved up there afterwards.

Q. 67. Did you see a lot of caps, do you know whether there was a lot on the market made that way?

A. There was a lot made that way. The last time that I was up in Millis and Stewart was alive I saw about four or five machines running.

Q. 68. When you built this machine of the patent that we have been talking about—1927 you say you built the first one?

A. I may be mistaken by a year or two, but it is about that time as near as I can recall.

Q. 69. What kind of spots did you mean to put in this machine you were building?

A. We would cut a groove in the cork, a flange, and the tinfoil spot would be inserted in it.

Q. 70. I am asking you when you built your machine of 1927, the machine of the patent, what kind of spots were you going to put on crowns, what kind of center spots?

A. Tinfoil spots.

Q. 71. How were you going to insert them?

A. By flanging them and inserting them in the groove that was cut in the cork.

Q. 72. This patent does not call for putting spots in by flanging.

A. I did not patent that machine, I never made one but that.

Q. 73. I am asking you about this patent 1,852,578, what [fol. 232] kind of center spots did you mean to put on?

A. We meant to glue them on.

Q. 74. What kind of glue, gutta percha?

A. Gutta percha lining.

Q. 75. And gum or anything like that?

A. No, I never tried that. Well, I tried it once a little bit, but it did not work.

Q. 76. And had you ever seen a center spot with gutta percha before you thought of building that machine?

A. I had seen—I think I saw a cap once but I don't know where it was made.

Q. 77. In which there was a metal foil center spot fastened on with gutta percha?

A. Yes, but then I had already started to make one and that was in the beginning of 1927.

Q. 78. About how many machines like this patent 1,852,578 have you made and sold, do you remember?

A. I don't think I have that.

Q. 79. Have you got a list? ✓

A. No, I haven't got no list.

Q. 80. Well, did you sell a dozen or two dozen or has your assistant got a list?

A. I cannot say offhand.

Q. 81. I show you a list of machines approximating 34 or 35 and I ask you if you sold all those machines on the

dates mentioned there and if they are all like this Johnson patent 1,852,578.

A. Yes.

Mr. Warland: I offer this list in evidence.

(Marked Defendant's Exhibit V in evidence.)

Q. 82. I show you a catalog issued by the A. Johnson Machine Works and ask you if that is one of your catalogs? [fol. 233] A. Yes, that is one of them, and I have got one with me; that is the same.

Q. 83. Look at page 19.

A. Page 19 is what we call the winding machine.

Q. 84. What is that used for?

A. For winding gutta percha right to tin-foil, adhering gutta percha to tin-foil or paper or aluminum-foil or anything like that.

Q. 85. How long have you been making machines like that shown on page 19?

A. Since 1928, when I started to make the spot machines.

Q. 86. Have you sold many machines like that?

A. No, not very many; maybe three or four of them, maybe less.

Q. 87. You think you put the first one on the market in 1928?

A. I don't know; yes, it was in 1928. I do not know, without looking it up I couldn't give you the date. I think Mr. Gutmann has got one.

Q. 88. Did you sell any to anyone besides Gutmann?

A. I couldn't say without—

Q. 89. Never mind if you haven't got it handy there.

A. I know there wasn't many sold.

Mr. Warland: I would like to offer page 19 of this catalog in evidence.

(Marked Defendant's Exhibit W in evidence.)

Mr. Warland: I will offer in evidence a bill of the Johnson Machine Works to Ferdinand Gutmann & Company, dated March 18, 1931.

(Marked Defendant's Exhibit X in evidence.)

Q. 90. In the machines made like this patent of yours, 1,852,578, the spotting machines, how fast do those machines operate?

A. At the start when I made them I could only run them about a hundred a minute, but then in a year's time or so I improved them so you could run them 250.

Q. 91. That is about as fast as they can be run, isn't it?

A. Yes, that is as fast as it is practical to run them.

Q. 92. Now, you told me, as I remember your testimony, that you sold your patent for the spotting machine to the Crown Cork & Seal Company.

A. Yes.

Q. 93. And they gave you a license to use it, is that right?

A. That is right.

Q. 94. Did you make any agreement that you couldn't sell them to anybody else without their permission?

A. Yes, that is right, that I should not sell them to anyone except they signed up an agreement with the Crown Cork & Seal Company, anyone in this country.

Q. 95. In other words, you couldn't sell a machine to any manufacturer unless he signed a license agreement with the Crown Cork & Seal Company?

A. That is right; that is the understanding.

Q. 96. Is this the agreement that you had?

A. Yes.

Mr. Warland: That is offered in evidence.

(Marked Defendant's Exhibit Y in evidence.)

Q. 97. Did you get that letter (handing)?

A. Yes, sir, I got that letter.

Mr. Warland: I offer in evidence a letter received by the plaintiff to John A. Johnson, dated December 12, 1933.

[fol. 235] (Marked Defendant's Exhibit Z in evidence.)

Q. 98. Is this a copy of the assignment you made of the patent to the Crown Cork & Seal Company?

A. That is.

Q. 99. Did you assign this the same day you got that letter now marked Exhibit Z, from the Crown Cork & Seal Company?

A. Yes, sir.

Mr. Warland: I offer this assignment in evidence. I will

ask counsel for the plaintiff when that assignment was recorded.

Mr. Darby: We do not recall the exact date but we will ascertain the same and stipulate it later.

Mr. Warland: Very well.

(Marked Defendant's Exhibit AA in evidence.)

Mr. Warland: That is all.

Cross-examination.

By Mr. Scull:

X Q. 100. I understand, Mr. Johnson, that you began your work leading up to this center spot machine of yours in the first part of 1927.

A. Yes.

X Q. 101. And the first machine which you had completed was the one which you sold to the Sociedad Industriale de Cuba, is that right?

A. That is the one.

X Q. 102. And that was shipped or sold on March 1st, 1928?

A. That is correct.

X Q. 103. Just what did you do in order to get up to that Cuban machine which you sold on March 1st, 1928?

[fol. 236] A. Well, like any machines that you make it takes time to get them completed and that machine was not very good either but it was not sent back so I suppose they are using it. That machine had no preheating on it and it was a heated plunger and that was the first machine that I made. I made two of them but the other one was returned to me so it did not pan out very good until I changed it.

X Q. 104. I show you a photograph which has been touched up apparently for the purposes of making a cut and I ask you if that shows the Cuban machine of March 1st, 1928?

A. Yes, that is the machine.

Mr. Scull: I offer this photograph in evidence, or rather, with the permission of counsel, a photostatic copy of it.

Mr. Warland: No objection to that.

(Marked Plaintiff's Exhibit 35 in evidence.)

X Q. 105. This machine had no dial on it either, did it?

A. No. A drum we call it.

X Q. 106. And after the hot punch had cut out the spot did it apply it directly to the cork?

A. No, there was a cold punch after it, one or two—I think there was two, I think.

X Q. 107. Now, look at this photograph Plaintiff's Exhibit 35 and tell me whether it is not a fact that that shows only two punches?

A. Yes, that shows a punch and a heater in the cutting punch and one heating punch after—we do not have no cold punch. There is two heating punches.

X Q. 108. Now, this machine, as I understand it was completed just about the time or just before you shipped it to Cuba, in March?

A. Right.

[fol. 237] X Q. 109. Now, you said you made two of them and one went out and was returned. Who did that go out to?

A. I think it was to the Armstrong Cork Company to the best of my recollection.

X Q. 110. Was there any trouble about that machine?

A. Yes, there was a lot of trouble about it, it did not work good.

X Q. 111. What did the Armstrong people do about it?

A. I told them to send it back again because I don't want them to pay for a machine that does not work.

X Q. 112. And did you fix it up and ultimately send it to them again?

A. No, I did not send it back at that time. I made some changes on it and I send it to some other customer.

X Q. 113. When you fixed it up, what did you do?

A. Well, in the meantime I had done some further experiments and I saw that that didn't work, and I put pre-heaters on it, and took out the heater in the cutting punch and heated the cork before the spot was inserted, and then made a drum for it to hold it so it should smoothen out the cork better. I think that was the changes that was made.

X Q. 114. I show you a letter signed A. Johnson, dated October 5, 1928, and addressed to Armstrong Cork Company in which you say, "I have now made some changes on the tin-foil machine inasmuch as I have installed a drum with 24 punches on same as I can see that the crown has to be held under pressure after the tin-foil is inserted in

order to make a good job. I am now working on making some changes on the heating units. I have received some special ones which are guaranteed not to burn out, and I [fol. 238] now have to see what I can do in regard to not having the tin-foil disc stick to the punch. I expect to have the machine ready some time next week and then I will write you at once how it is running."

You wrote that letter and sent it on about that date, did you not?

A. Yes, I wrote that letter and sent it at that time, yes, that was the time I was working on what we call the pre-heaters of the cork.

Mr. Scull: I offer this letter, or rather a photostatic copy of it in evidence as Plaintiff's Exhibit 36.

(Marked Plaintiff's Exhibit 36 in evidence.)

X Q. 115. When you say in this letter that you are going to see what you could do in regard to not having the tin-foil disc stick to the punch, do you recall what that was?

A. Yes, I sure do.

X Q. 116. What was it?

A. I took the heat out of the cutting punch altogether and installed two heaters in front of it, and also a space heater I installed before the tin-foil disc was cut and inserted. And that kept the cutting punch cold.

X Q. 117. And that was done after you wrote this letter of October 5th?

A. That was done at that time, you see I had that machine practically completed at that time.

X Q. 118. You say here you were going to see, "and I now have to see what I can do in regard to not having the tin-foil disc stick to the punch."

A. Well, that is the word I suppose I used, I was working on it at this time.

X Q. 119. It was about this time, October 5th, that you put on this pre-heater?

A. Yes.

[fol. 239] X Q. 120. You hadn't had it before that?

A. No.

X Q. 121. Not on any machine?

A. No.

(Recess taken until November 8, 1935; 10:30 a. m.)

Brooklyn, N. Y., November 8, 1935.

Met pursuant to recess at 10:30 a. m.; present as before.

RICHARD C. HARRISON, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What is your business, Mr. Harrison?

A. I am president of the White Rock Mineral Springs Company.

Q. 2. How long have you been president of that company?

A. I have been president since July 1, 1920.

Q. 3. How long have you been connected with the White Rock Company?

A. Since July 1, 1919.

Q. 4. And you are familiar with the type of goods that the White Rock Company puts out?

A. I am.

Q. 5. What do you sell principally, White Rock Water?

A. White Rock Water.

Q. 6. This litigation is concerned with the type of what we call a metal foil spot which is put in the center of a bottle cap, and I show you a bottle cap Plaintiff's Exhibit 20 with a tin-foil center, and that is put in the cork by slotting [fol. 240] the cork and inserting the edge of the tin-foil in there. Is your company using that type of stopper now?

A. Yes.

Q. 7. How many years have you been using that?

A. Well, since approximately 1914, as far as I am aware; we have been using it ever since I have been president.

Q. 8. Do you recall where you purchase such caps?

A. Where?

Q. 9. Yes.

A. Yes.

Q. 10. Where?

A. We own the patent for the metal center, and put them in ourselves.

Q. 11. That patent was obtained from a man named Nielson?

A. No, it was bought from the United Metal Seal Company.

Q. 12. Of Millis, Massachusetts?

A. At the time we bought it they were in Boston, I do not know whether they were ever in Millis.

Q. 13. Do you recall the name and number of that patent?

A. No; I do not.

Q. 14. Would you know it if I showed it to you?

A. I am not sure that I could.

Q. 15. I show you patent to Nielson dated August 26, 1916, No. 1,195,392. Please look at that and see if that, if those several pages of drawings there refresh your recollection.

A. I do not know, sir, I would have to look at our files. I know we bought patents covering this process, whether this is the one, I have no knowledge.

Q. 16. Would you mind stating approximately how many bottles of White Rock each year the White Rock Company sells with caps like that?

A. Well, we have sold since I have been president over 350,000 bottles with this cap.

Q. 17. You are using this type today?

A. Using that type today.

[fol. 241] Q. 18. Is there any reason why your company doesn't use a center spot which is secured in some other way, for instance with adhesive such as gutta percha or something else?

A. We found it very unsatisfactory; we bought this patent for that reason, we wanted to control it.

Q. 19. Do you have any trouble with center spots falling out?

A. No, no practical trouble, no, sir.

Mr. Scull: No cross-examination.

(Witness excused.)

JOHN A. JOHNSON, resumed:

Cross-examination continued.

By Mr. Scull:

X Q. 122. Mr. Johnson, I show you a letter on the letter-head of the Armstrong Cork Company, signed by the Armstrong Cork Company, Crown Division, dated April 20, 1928, and a carbon of a letter addressed to them and dated

April 24, 1928, signed by the Johnson Machine Works and I ask you first whether that is a letter which you received and second whether that is a carbon of a letter which you sent to them?

A. Yes, sir, it is.

X Q. 123. These letters, my understanding is, refer to the machines that you told us about yesterday that you sent to the Armstrong Cork Company and which proved unsatisfactory and were sent back?

A. That is correct.

X Q. 124. When you say in this letter of April 24, 1928, that, "I have got one of these machines ready" that was [fol. 242] a machine like the Cuba machine which had no pre-heating and no dial on it?

A. That is correct.

X Q. 125. And that is the one you sent to the Armstrong Company?

A. Yes.

Mr. Scull: I offer these letters in evidence.

(Marked Plaintiff's Exhibit 37 in evidence.)

X Q. 126. Mr. Johnson, you have told us that you had been in this business of making machinery for some thirty years?

A. Yes.

X Q. 127. I do not think it is quite clear just what your connection with it is. My understanding is that you are the designer and inventor of machinery that is used in the industry, is that right?

A. Yes, I am, and I also have got a machine shop where we make them.

X Q. 128. I mean you personally are the man who designs the machinery?

A. Yes.

X Q. 129. So whenever any new use comes along you are the man that does the personal work?

A. No, I got a draftsman—

X Q. 130. But you have the ideas and the draftsman carries out the ideas?

A. Yes.

X Q. 131. As a matter of fact you have designed a great deal of the machinery which is now in use in this crown industry?

A. Yes, I have.

X Q. 132. And you have patented a great many of your inventions?

A. I patented practically all of them that I can get any patent on.

Redirect examination.

By Mr. Warland:

R. D. Q. 133. I show you a patent to Clark No. 1,134,031, dated March 30, 1915, wherein it says, "Robert G. Clark, [fol. 243] assignor to John A. Johnson." Are you the Mr. Johnson in that patent?

A. Yes, sir.

R. D. Q. 134. And that machine is known as the Clark-Johnson assembling machine?

A. Yes.

R. D. Q. 135. It just puts the cashion liners into the crowns?

A. That's right.

R. D. Q. 136. Now, when you sold this machine to the Armstrong Cork Company, that Mr. Scull has asked you about, was the Armstrong Cork Company making and selling center spots at that time?

A. I cannot tell because this was—this patent went back so far as 20 years now and I sold some of them to Armstrong's almost that many years ago and they were not used for center spots, they were only used for assembling crowns.

R. D. Q. 137. What I am asking you is when you put these machines in in 1928 to Armstrong—

A. Yes.

R. D. Q. 138. Armstrong was making and selling center spots, is that right?

A. That I do not know.

R. D. Q. 139. Are you here under subpoena?

A. Yes.

R. D. Q. 140. This letter of April 24, 1928, which Mr. Scull just showed you, I notice that letter states, "I do not know if it is so or not. However, I asked McManus to send me the patent papers, or the number of the patent so I could secure one of the copies, as I do not think there is any patent on the same, as I know some concerns have been

making it for years, but I want to find out, because I do [fol. 244] not want to infringe on anybody's patents." You wrote that?

A. I wrote that, yes.

R. D. Q. 141. You are here under subpoena, aren't you?

A. I am.

RALPH L. EVANS, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What business are you in, Mr. Evans?

A. I am connected with a corporation called Andrevan, Inc.

Q. 2. Is that company you are connected with any successor to any other company in the same line of business?

A. It is a holding company which owns and operates several companies who are manufacturing companies.

Q. 3. Does it operate a company known as the Inecto Company?

A. Yes, sir.

Q. 4. Have you been connected with the Inecto Company?

A. I have.

Q. 5. Has the Inecto Company bought any goods from the defendant in this case, Ferdinand Gutmann & Company?

A. Yes.

Q. 6. Did you have personal charge of the purchase of those goods?

A. I had control of the purchase, yes.

Q. 7. What sort of goods did you purchase from the defendant, Ferdinand Gutmann & Company?

A. Crimp caps for bottles, crown caps.

Q. 8. What material, what substance was in those bottles? [fol. 245] A. The company manufactures a hair dye, part of which is peroxide of hydrogen.

Q. 9. I show you an invoice on the billhead of Ferdinand Gutmann & Company, dated May 21, 1925, to the Inecto Company. Will you please look at that and tell me whether that calls for goods that were actually sold and delivered to the Inecto Company?

A. It does.

Q. 10. That calls for crown openers AC contract; do you know what kind of crowns were in that invoice?

A. That is not for crowns, that is for crown openers, that is for the little levers that are used to lift the crowns off the bottles.

Q. 11. I show you an invoice dated December 4, 1924, from Ferdinand Gutmann & Company to the Inecto Company; it calls for 100,000 special decoration B without tin-foil; can you tell me what that is?

A. The special decoration crowns B were crowns for bottles to contain hydrogen peroxide.

Q. 12. Do you know what sort of crowns they had on them, did they have a center spot?

A. The ones with tin-foil did have a center spot.

Q. 13. And do you know how that center spot was secured?

A. I would have to look at the invoice again.

Q. 14. Please do so.

A. This particular shipment, the center spot was slotted in the cork.

Q. 15. Like that shown in Plaintiff's Exhibit 20, the White Rock?

A. Yes.

Q. 16. I show you another cap having the letter B on the back of it. Were the crowns that you purchased from Gutmann made like that (handing to witness)?

A. Yes.

Q. 17. That is the foil flanged into the cork, the same as the White Rock cap?

A. Right.

[fol. 246] Mr. Warland: I offer that cap marked B in evidence.

(Marked Defendant's Exhibit BB in evidence.)

Q. 18. I show you another invoice from the Gutmann Company to the Inecto Company dated December 11, 1924, calling for 300,000 special decorations crown A and 95,000 special decorations crown B. What is the difference between A and B?

A. The product which is manufactured—the hair coloring must be mixed immediately before using and consists of two separate liquids. The crown A is marked with the letter A and those are applied to one type of liquid and

crown B are marked with the letter B and are applied to the bottles containing the second component of the product, the second component being hydrogen peroxide.

Q. 19. Do I understand that the bottles containing that have center spots?

A. Yes.

Q. 20. And B designates center spots?

A. No, not all of B crowns have center spots. The center spots, however, were adapted for B crowns at about the time of the dates of these invoices. They were all slotted in.

The Court: You say they were all slotted in and not caused to adhere by any glue?

The Witness: Well, with reference to these invoices that have been shown to me, they were slotted.

Mr. Warland: I offer these two invoices in evidence.

(Marked Defendant's Exhibit CC in evidence.)

[fol. 247] Q. 21. Now, I show you an invoice from Gutmann to the Inecto Company dated January 27, 1925, calling for 84,750 special decoration crowns B at \$1.85 per thousand. Can you tell what kind of center spots those had and how they were secured?

A. These center spots—the center spots on these crowns were secured with gutta percha.

Mr. Warland: I offer this invoice in evidence.

(Marked Defendant's Exhibit DD in evidence.)

Q. 22. I show you another invoice dated February 5, 1925, from Gutmann Company to the Inecto Company calling for 41,500 special decoration crowns B at \$1.85 per thousand. Beneath that it says, "Tin-foil paraffin coated, \$1.80 per thousand." Were those goods actually sold and delivered and used by the Inecto Company?

A. They were.

Q. 23. On the dates mentioned?

A. Yes.

Q. 24. Can you tell how the center spot was secured in that shipment?

A. With gutta percha.

Q. 25. I understand it was a tin-foil spot secured by gutta percha to the crown cork?

A. That is right.

Mr. Warland: I offer this in evidence.

(Marked Defendant's Exhibit EE in evidence.)

Q. 26. I show you another invoice dated March 4, 1925, from the Gutmann Company to the Inecto Company calling for 64,200 special decoration B caps at \$1.80. "B caps received from you to have tin-foil inserted. Case No. 7—one [fol. 248] case of 25,000. Case No. 8—one case of 25,000. Case No. 9—one case of 14,200. This leaves a balance of 285,800 of which 35,800 are to have tin-foil inserted." Did you receive and use those goods?

A. We did.

Q. 27. How were the center spots secured in that order?

A. Tin-foil with gutta percha.

Q. 28. Tin-foil with gutta percha?

A. Right.

Mr. Warland: I offer the above in evidence.

(Marked Defendant's Exhibit FF in evidence.)

Q. 29. I show you another invoice dated February 19, 1925, from Gutmann & Company to Inecto Company for 150,000 special decoration B caps received from you to have tin-foil inserted, \$1.80, cases 1 to 6, 6 cases, 25,000 each. This leaves a balance of 350,000, of which 100,000 are to have tin-foil inserted. Did you receive those goods?

A. We did.

Q. 30. Did the caps mentioned in that invoice have tin-foil with gutta percha?

A. They did, yes.

Mr. Warland: I offer that in evidence.

(Marked Defendant's Exhibit GG in evidence.)

Q. 31. I show you a letter on the letterhead of the Inecto Company, dated February 4, 1925, addressed to the defendant, Ferdinand Gutmann & Company, in which you state, "Attention Mr. Jesse Gutmann. This is to confirm our verbal instructions to you advising you to furnish us 250,000 B caps returned to you by lining them with tin-foil [fol. 249] gutta percha combination." Did you send that letter to the defendant?

A. I did.

Mr. Warland: I offer that in evidence.

(Marked Defendant's Exhibit HH in evidence.)

Q. 32. I show you a letter from Inecto Company to the Gutmann Company, dated March 9, 1925, in which you say,

"Confirming our telephone conversation of this morning referring to your letter of yesterday, we do not want half an order (that is, 125,000 B caps) supplied to us without paraffin. However, we are anxious to get just as soon as possible several hundred B caps without gutta percha but with tin-foil inserted in the cork with a shallow slot where no paraffin has been applied." Did you send that letter to the defendant Gutmann Company?

A. I did.

Mr. Warland: I offer that in evidence.

(Marked Defendant's Exhibit II in evidence.)

Q. 33. I show you an invoice by the defendant Gutmann to the Inecto Company, dated March 26, 1925, calling for 25,000 special decoration B caps returned by you to have tin-foil inserted, \$1.15, containing paraffin coating without gutta percha, \$28.75; did you receive those goods?

A. We did.

Mr. Warland: I offer it in evidence.

(Marked Defendant's Exhibit JJ in evidence.)

Q. 34. I show you another invoice dated March 26, 1925, from the defendant Gutmann to the Inecto Company, calling [fol. 250] for 25,000 special decoration B caps received from you to have tin-foil inserted, paraffin coated without gutta percha, \$1.15, \$28.75; did you get those goods from the Gutmann Company?

A. Yes.

Mr. Warland: I offer this in evidence.

(Marked Defendant's Exhibit KK in evidence.)

Q. 35. I notice that you have testified as to a great many invoices for tin-foil spots with gutta percha, and some subsequent invoices without gutta percha. Can you tell us why you changed from the center spots secured by gutta percha to the foil spot inserted in the cork like the one I showed you a moment ago?

A. The product which we were enclosing in a bottle was hydrogen peroxide. It is a chemical, a very sensitive substance to decomposition. The purpose of the tin-foil was to protect the peroxide from contamination either by the cork, the substance of the cork, or by the iron forming in the

shell of the crown, which would promote the decomposition of the product and its spoilage.

At about this time we were working with various methods of protecting this product. At first the slotted crowns with the tin-foil spot inserted proved to be unsatisfactory for a combination of reasons. The slot was too deep, the face of the bottle that formed the closing seal with the cork was too sharp. The result was that the center spot cut through in the capping machine and did not properly seal the bottle.

Because of that defect we adopted gutta percha crowns, at the same time asking the Gutmann Company to see if [fol. 251] they could not deliver us crowns in which the center spot was slotted in in a very shallow slot so the cork would not be subject to cutting out in the way it had done in the first samples. We correspondingly had the neck rings of our bottle molds changed to give a flatter contact with the liner in the cap in order to avoid the same cutting.

One reason for desiring the slotted corks rather than the gutta percha corks related to our stability tests of this product, which indicated that the corks which were slotted, or the peroxide in the bottles sealed with slotted corks was more stable than that in bottles sealed with the gutta percha insert. We could never quite understand why that was, but our experiments indicated that was true.

In addition to that the slotted corks were offered to us at about 65 cents a thousand cheaper than the gutta percha spots, and that was a compelling reason.

Q. 36. Now, as I understand your testimony, your concern first used the flanged-in center spots and they were not put in quite satisfactorily, and then you adopted the gutta percha to make the disc hold more firmly, but you did not like the gutta percha because of its possible action on the contents of the bottle, and after Gutmann had improved their method of inserting the center spot you bought the center spot inserted by flanging, is that right?

A. Yes, that is right.

Q. 37. And you have been buying from Gutmann center spot caps in which the center spot is inserted by a flange continuously from 1925 up to the present time?

A. Yes.

Q. 38. And are buying them today?

A. Yes.

[fol. 252] Q. 39. Do you mind stating approximately how many caps a year you buy, can you tell that?

A. There would be between one and two million.

Q. 40. Each year since 1925?

A. Each year since 1925, yes.

Q. 41. I hand you six invoices from the Gutmann Company to the Inecto Company, running from March 27, 1925, to May 18, 1925, and I ask you if you received these goods and if they are typical of the invoices sent you since that time by the Gutmann Company for goods sold to you since that date?

A. These are invoices for goods received and are typical of invoices received for other goods since that date.

Mr. Warland: I offer these invoices in evidence to be marked as one exhibit.

(Marked Defendant's Exhibit LL in evidence.)

Cross-examination.

By Mr. Scull:

X Q. 42. When did you first begin to market this hydrogen peroxide as part of the Inecto combination?

A. 1919.

X Q. 43. And how was that bottle originally stoppered?

A. That was first stoppered with a paraffin cork.

X Q. 44. And how long did you do that?

A. I am not sure of the exact date when that system was abandoned, but it was about 1920 or '21.

X Q. 45. And then what did you use?

A. Various types of closures were tried. There were quite a number of different types tried and finally resulting in the adoption of the ordinary crimp crown cap.

[fol. 253] X Q. 46. Composition cork or natural cork?

A. For the hydrogen peroxide, natural cork.

X Q. 47. With a paraffin coating?

A. Yes.

X Q. 48. Then when did you begin using this inserted tin-foil?

A. At about the time that we have been speaking of, the early part of 1925 or December of 1924.

X Q. 49. How long did you use that before this matter of gutta percha arose?

A. It arose very early in our discussion of that center spot.

X Q. 50. Who was it that suggested it to you?

A. Mr. Jesse Gutmann.

X Q. 51. Suggested the use of gutta percha?

A. Mr. Jesse Gutmann.

X Q. 52. Some of these invoices you have put in here apparently indicate that these spot decoration B caps were being sent back by you to Gutmann to have "tin foil inserted." Why was that?

A. We had been buying caps from Ferdinand Gutmann & Company for some time previously and these that were sent back were caps that we had in stock. Our experiments indicated to us that the foil inserted caps were much more satisfactory than those without foil so those that did not have foil in them and were in our supplies were returned for the insertion of the foil.

X Q. 53. Can you tell for instance from these invoices or from this one particularly dated February 19, 1925, and which is marked Defendant's Exhibit GG what was the character of the tin foil that was to be inserted there, that is to say was it to be a slotted foil or was it to be gutta percha?

A. The goods referred to in this invoice were to have foil attached with gutta percha.

X Q. 54. How do you know that?

[fol. 254] A. Because of the price. The price for the foil spot to be slotted was \$1.15 a thousand and the price for the foil spot to be attached with gutta percha was \$1.80.

X Q. 55. That is the only way you can tell, there is nothing else on there that indicates the difference?

A. Not on this invoice, no.

X Q. 56. I wish you would just elucidate for me the meaning of this Exhibit DD dated January 27, 1925, an invoice, particularly the part that reads, "84,750 special decoration crowns—B" and one line below that "tin foil, paraffin coated" and then on the next line are the two prices \$1.85 and \$1.80.

A. The top line which says 84,750 special decoration crowns B at \$1.85 per thousand is the price for the crowns without any spot and that means crown and cork liner. The price below is the additional price for the insertion of the tin foil and reads "tin foil, paraffin coated, \$1.80 per thousand."

X Q. 57. How long did it take you to find out that this gutta percha was being, at least, the crown with the gutta percha, was being affected by the peroxide?

A. Our experiments extended over several months. However, we could determine some information indicative in character in a matter of a couple of weeks.

X Q. 58. How long was it altogether that you used these gutta percha spots?

A. Well, that was over a period of two or three months, as I recall it.

X Q. 59. As I understand, in between, and mixed up with them, you were also using the inserted spots, were you not?

A. Well, the first inserted spots were unsatisfactory from a production point of view, and we replaced the use of the [fol. 255] inserted spots or the slotted spots with the gutta percha, and we used the gutta percha in production for a period, as I recall it, of two or three months while a better system of slotting was being developed by the Gutmann Company, and while bottles with the different-shaped seat or sealing seat were being manufactured by the bottle company.

X Q. 60. Where the invoices read "Tin-foil paraffin coated," what does that mean?

A. That means that the entire foil and cork were coated with paraffin after the foil was applied.

X Q. 61. Weren't the corks that you were sending back to have these spots put on them already paraffin coated?

A. I believe they were. I might point out there was a difference in the thickness of the paraffin. Paraffin is inert to hydrogen peroxide, and at this time we were attempting to permit the liquid to contact only materials which would not react with it.

Redirect examination.

By Mr. Warland:

R. D. Q. 62. You, or at least the Inecto Company, used and sold all these gutta percha caps that were purchased from Gutmann, did it not?

A. Practically all of them except what we consumed in our experimental work.

R. D. Q. 63. With reference to a question by Mr. Scull, I show you a copy of a letter written to the Inecto Company by the Gutmann Company, dated February 19, 1925, and wish

you would be good enough to read that and see if it confirms your recollection of the transaction between you and the Gutmann Company?

A. It does.

R. D. Q. 64. Do you remember getting the original of that letter?

A. I do.

[fol. 256] R. D. Q. 65. Could you find it for us in your files and send it to us later?

Mr. Scull: I do not object to your copy.

Mr. Warland: Then I will offer the copy in evidence.

(Marked Defendant's Exhibit MM in evidence.)

Recross-examination.

By Mr. Scull:

R. X Q. 66. I assume, Mr. Evans, that all of these corks you have been telling us about were natural corks?

A. As I recall it—well, all of the center spot corks were.

Mr. Warland: You are here under subpoena, are you not?

The Witness: I am.

(Witness excused.)

ALFRED C. DELANOY, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What is your business, Mr. DeLanoy?

A. Gutta percha.

Q. 2. With what company are you connected?

A. Bishop Gutta Percha Company.

Q. 3. How long have you been connected with that company?

A. About thirteen years.

[fol. 257] Q. 4. Have you done any business or sold any goods to the defendant in this case, Ferdinand Gutmann & Company?

A. We have.

Q. 5. I show you a letter written by the Bishop Gutta Percha Company to the defendant Gutmann, dated January 6, 1925, and ask you if you recall sending that letter and if that is your signature on that letter?

A. I recall the letter having been sent out, but it is not my signature on it; it is the signature of my secretary.

Mr. Warland: I offer that in evidence.

(Marked Defendant's Exhibit NN in evidence.)

Q. 6. I show you an invoice from the Bishop Gutta Percha Company to Ferdinand Gutmann Company, dated January 7, 1925, and ask you to be good enough to tell me what that calls for?

A. It calls for four pounds 9/10 36-inch bolt surgical tissue.

Q. 7. Just what does that mean?

A. Bolt is a designated form in which the tissue is put up in its natural condition. It is folded in what we call bolt form, so that when it is laid flat it opens out 36 inches square, and when folded it is in a form like a bolt of cloth or felt or anything of that nature, and we designate that particular style of put-up as a bolt form.

Q. 8. Were the goods covered by that invoice actually delivered to the defendant, Gutmann Company?

A. Yes, sir.

Mr. Warland: I offer that in evidence.

(Marked Defendant's Exhibit OO in evidence.)

[fol. 258] Q. 9. I show you an invoice dated December 31, 1924, to the defendant Gutmann, which is marked No Charge. Will you please explain what that is?

A. I do not understand why there should be two samples of the same thing. One is marked one-half square yard 9/10 I. B. tissue, and a half square yard ditto. My impression of that is there were two different weights of tissue that were sent as a sample at that time.

Q. 10. Is that your first transaction with the Gutmann Company, as far as you can remember? Had you sold them goods prior to December 24th, or hadn't you?

A. What is the date of that?

Mr. Warland: I will offer this in evidence.

(Marked Defendant's Exhibit PP in evidence.)

Q. 11. This is December 21st, 1924.

A. I have some records here and I will look it up. The first sale made to them was in 1925.

Q. 12. I show you an invoice Bishop Gutta Percha Company to Gutmann dated January 16, 1925, calling for 10 $\frac{1}{4}$ pounds of 9-10 roll of surgical tissue. I ask if those goods were delivered by your company to the Gutmann Company at or about the date mentioned in that invoice?

A. Yes, sir, they were.

Mr. Warland: I offer the invoice in evidence.

(Marked Defendant's Exhibit QQ in evidence.)

Q. 13. I show you another invoice from your company to the defendant dated January 30th, 1925, calling for 21 [fol. 259] pounds of 9-10 roll surgical tissue and I ask you if those goods were delivered to the defendant Gutmann at or about that date?

A. They were.

Mr. Warland: I offer them in evidence.

(Marked Defendant's Exhibit RR in evidence.)

Q. 14. I show you another invoice dated February 11, 1925, calling for 9 $\frac{3}{4}$ pounds of 9-10 bolt surgical tissue, and to which is attached a credit memorandum. I ask if those goods were delivered on the date specified?

A. They were, yes, sir.

Mr. Warland: I offer that in evidence.

(Marked Defendant's Exhibit SS in evidence.)

Q. 15. I hand you a batch of invoices made out by the Bishop Gutta Percha Company to the defendant Gutmann, and running from March 23, 1928, to September 27, 1928, and I wish you would be good enough to look those over and tell us whether you shipped the goods mentioned in those invoices on the dates mentioned therein, to the defendant Gutmann Company?

A. I want to qualify it by saying that the material may have been delivered a day or two before the invoices were dated, but approximately on that date would be correct.

Q. 16. Approximately those dates the goods were shipped?

A. Approximately on those dates would be correct. It was all delivered at approximately those dates.

[fol. 260] Mr. Warland: I offer these invoices in evidence as one exhibit.

(Marked Defendant's Exhibit TT in evidence.)

Q. 17. Now, do your records show whether you shipped any gutta percha to the defendant Gutmann between the dates on those invoices in 1925 and 1928?

A. No, sir.

Q. 18. You did not ship any at that period?

A. No, sir.

Q. 19. Now, since the date of this batch of invoices and September 27, 1928, have you sold them quantities of gutta percha?

A. No, sir.

Q. 20. Not since 1928?

A. No, sir.

Q. 21. Now, has your company sold gutta percha to other crown cap manufacturing companies?

A. Yes.

Q. 22. Do you remember when you first sold any to the Crown Cork & Seal Company, the plaintiff here, have you any record of that?

A. Yes.

Q. 23. What is the date?

A. In 1914.

Q. 24. Have you been selling the Crown Cork & Seal Company continuously since then, gutta percha?

A. Yes.

Q. 25. And you are here under subpoena, aren't you?

A. Yes, sir.

Q. 26. You have sold gutta percha to other manufacturers besides the Crown Cork & Seal Company and the defendant?

A. Yes, sir.

Mr. Scull: No cross examination.

(Witness excused.)

[fol. 261] GEORGE L. PETERS, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What business are you in, Mr. Peters?

A. We are in the gutta percha business, we coat cloths with gutta percha and similar material.

Q. 2. What company are you connected with?

A. The Peters Brothers Rubber Company, Inc.

Q. 3. What position do you hold there?

A. President and treasurer.

Q. 4. Will you tell us how long about that company has been established?

A. The original company was established by my grandfather in 1879.

Q. 5. How long have you been personally connected with the company?

A. Since 1911.

Q. 6. Since 1911 has your company coated various materials such as cloth and paper and foil with gutta percha?

A. Yes.

Q. 7. Have you ever done any business with the defendant, the Ferdinand Gutmann Company, in this case?

A. Yes, sir.

Q. 8. Have you coated any material for them with gutta percha?

A. Yes, sir.

Q. 9. I show you an invoice from the Peters Brothers to the defendant Gutmann, dated April 10, 1929, and I ask you if you can tell me what that was for?

A. Yes, sir, we coated some paper for the Ferdinand Gutmann Company and cut it into one-inch strips.

Q. 10. You coated it with gutta percha?

A. Yes.

[fol. 262] Q. 11. Do you know what kind of paper it was?

A. It was a varnish paper, what we call a brown varnish paper.

Q. 12. And is the paper which you coated for Gutmann called for in that invoice like this paper attached to Plaintiff's Exhibit 12 which I now show you?

A. Yes, it was like that material.

Mr. Warland: I offer the invoice just referred to in evidence.

(Marked Defendant's Exhibit UU in evidence.)

Q. 13. I show you three invoices from the Peters Brothers Rubber Company to Ferdinand Gutmann dated August 21, 1929, September 16, 1929 and November 1st, 1929, and I ask you to tell us whether you coated the material mentioned in those invoices and delivered to the Gutmann Company at about the dates mentioned in the invoices?

A. Yes, sir, we did.

Q. 14. Now, as I understand your testimony the Gutmann Company delivered this aluminum to you and delivered the paper to you and you coated these materials with gutta percha and cut them into one-inch strips, is that right?

A. One-inch strips, yes, sir.

Q. 15. And returned the strips coated to the Gutmann Company?

A. That is correct.

Mr. Warland: I offer the invoices in evidence.

(Marked Defendant's Exhibit VV in evidence.)

Q. 16. I show you three other invoices dated April 21, 1930, May 10, 1930, and May 15, 1930, from Peters Brothers [fol. 263] Rubber Company to Gutmann, and ask you if you coated the material mentioned in those invoices and delivered it to Gutmann at about the dates mentioned in the invoices?

A. Yes, sir, we did.

Q. 17. And was the material mentioned in the three invoices I have just handed you like this Plaintiff's Exhibit 12 I showed you a moment ago?

A. Yes, sir.

Mr. Warland: I offer the three invoices in evidence.

(Marked Defendant's Exhibit WW in evidence.)

Q. 18. I show you this invoice, dated May 25, 1929, and ask you if the goods mentioned therein were coated by the Peters Brothers and sent to the defendant Gutmann?

A. Yes, sir.

Mr. Warland: I offer this in evidence.

(Marked Defendant's Exhibit XX in evidence.)

Q. 19. I show you three invoices from Peters to the Gutmann Company, dated January 15th, April 28th and December 3rd, 1930, and ask you if the goods mentioned therein were delivered to the defendant, Gutmann Company?

A. They were.

Mr. Warland: I offer these in evidence.

(Marked Defendant's Exhibit YY in evidence.)

Q. 20. I show you four other invoices running from September 24, 1931, to November 1, 1932, as typical of other [fol. 264] invoices you sent the defendant during that time, ask you if the Peters Brothers Rubber Company coated the material mentioned in those bills and sent it to the Gutmann Company?

A. Yes, sir, we did.

Mr. Warland: I offer those invoices in evidence.

(Marked Defendant's Exhibit ZZ in evidence.)

Q. 21. Do you recall about when you stopped coating material for Gutmann?

A. About two years ago.

Q. 22. Have you coated metal foil and varnish paper like that shown in the exhibit for other crown cap manufacturers?

A. Yes, sir.

Q. 23. How long ago?

A. Coating it right up to date.

Q. 24. About when would you say you began, do you remember?

A. It was the time of repeal, the big business came in when Prohibition was repealed, that is when the real business started up in that.

Q. 25. Did you do much before that?

A. A little, but it wasn't very large.

Q. 26. Have you ever been to the defendant's factory, Ferdinand Gutmann & Company?

A. Yes, sir.

Q. 27. Have you seen them use material which your company coated with gutta percha?

A. Yes, sir.

Q. 28. What were they doing with it?

A. They were feeding it into a machine to stamp it, they cut a small disc from the foil or paper and stamped it onto the cork of a crown making spot crowns.

[fol. 265] Q. 29. Do you recall the date that you did that? Would any of your invoices refresh your recollection as to the date you saw that?

A. Yes, the first bill of aluminum that we sent down was when I saw the machine.

Q. 30. I show you these invoices that you have offered in evidence and ask you if the dates on any of those refresh your recollection as to when you were in the Gutmann plant and saw them making center spots?

A. As I remember, it was right after we delivered this lot of aluminum invoiced on May 25th that I called at the factory—

Q. 31. Which year?

A. 1929. I called at the factory and Mr. Cohn asked me to go out and look at the machine and see if there were any improvements we could make as to the material that was being run.

Q. 32. Do you think that is the first time you went to Gutmann's factory and saw this machine?

A. Yes, because that was the first occasion we had to deliver material to them to be used on that machine.

Q. 33. I show you two invoices, one dated April 3, 1929, and one dated May 15, 1929, the second of which calls for parchment paper coated with tissue. Do you know whether the goods mentioned in those invoices were coated by your company and shipped to Gutmann?

A. Yes, they were.

Mr. Warland: I offer these invoices in evidence.

(Marked Defendant's Exhibit AAA in evidence.)

[fol. 266] Q. 34. You are here under subpoena, aren't you?

A. Yes.

Q. 35. Will you produce the license agreement that you have with the Crown Cork & Seal Company?

A. Yes, right here. (Handing counsel paper.)

Mr. Warland: I offer this agreement in evidence.

(Marked Defendant's Exhibit BBB in evidence.)

Cross-examination.

By Mr. Scull:

X Q. 36. Mr. Peters, in this Exhibit UU of April 10, 1929, it calls for five yards of brown paper coated with tissue. Where did you get that brown paper?

A. It was sent to us by Gutmann.

X Q. 37. And is that true of all the other paper as specified in these invoices?

A. Yes, sir, it is.

X Q. 38. And do you know where that paper came from?

A. No, sir, I do not. I could guess where it came from, but I don't know.

(Witness excused.)

Mr. Warland: I now offer in evidence a certified copy of the File Wrapper and contents of patent No. 1,956,481.

(Marked Defendant's Exhibit CCC in evidence.)

Mr. Warland: I offer in evidence a copy of patent 1,956,481, and references set up in the answer as defense of that patent.

(Marked Defendant's Exhibit DDD in evidence.)

[fol. 267] Mr. Warland: I offer in evidence certified copy of File Wrapper and contents of patent No. 1,899,782.

(Marked Defendant's Exhibit EEE in evidence.)

Mr. Warland: I also offer in evidence at this time a book of references.

(Marked Defendant's Exhibit FFF in evidence.)

Mr. Warland: I offer in evidence certified copy of the File Wrapper and contents of reissue patent No. 19,117.

(Marked Defendant's Exhibit GGG in evidence.)

Mr. Warland: I offer in evidence a copy of the patent in suit and the references set up in the answer in one volume.

(Marked Defendant's Exhibit III in evidence.)

Mr. Warland: I offer in evidence a certified copy of the File Wrapper and contents of patent No. 1,788,260, which is the original referred to in the reissue patent.

(Marked Defendant's Exhibit HHH in evidence.)

Mr. Warland: I offer in evidence a certified copy of the File Wrapper and contents of the original application of Warth, Serial 360,895, referred to in patent 1,899,783.

(Marked Defendant's Exhibit JJJ in evidence.)

Mr. Warland: I offer in evidence a copy of the patent in suit and the references set up in the answer in patent 1,899,783.

[fol. 268] (Marked Defendant's Exhibit KKK in evidence.)

Mr. Warland: I offer in evidence a certified copy of the File Wrapper and contents in the patent to Warth No. 1,967,195.

(Marked Defendant's Exhibit LLL in evidence.)

Mr. Warland: And I offer in evidence a folder containing a copy of that patent and the references set forth in the answer.

(Marked Defendant's Exhibit MMM in evidence.)

ALVIN M. KETTERER, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1: What business are you in, Mr. Ketterer?

A. In the brewing business.

Q. 2. And connected with what brewery?

A. The M. T. Goetz Brewing Company.

Q. 3. And where are you located?

A. St. Josephs, Missouri.

Q. 4. What is your position there?

A. I am superintendent of the bottling department.

Q. 5. Do you know whether the Goetz Brewery ever bought any goods from the defendant Ferdinand Gutmann Company?

A. I do.

Q. 6. Did they?

A. Yes.

Q. 7. What kind of goods did they buy?

A. Crowns.

[fol. 269] Q. 8. With center spots?

A. They have, yes, sir.

Q. 9. I show you an invoice from the Ferdinand Gutmann Company to the Goetz Brewing Company dated August 14, 1928, and I ask you to tell us what that invoice calls for and whether you actually received the goods mentioned in that invoice?

A. It calls for 100 gross of special decorated, two colors, blue, black and gold lacquered, double X quality natural cork discs faced with aluminum centers of medium width diameter, cork discs, paper backed.

Q. 10. I show you Plaintiff's Exhibit 8 and I ask you if the crowns called for by that invoice were like Plaintiff's Exhibit 8?

A. Just about like that, yes, sir.

Mr. Warland: I offer this invoice in evidence.

(Marked Defendant's Exhibit NNN in evidence.)

Q. 11. Do you know how that center spot was secured to the natural cork?

A. I don't know how it was secured but I have been told how it was secured.

The Court: Never mind what you were told, you don't know, do you?

The Witness: No, I don't know.

Q. 12. I show you a credit memorandum dated October 2, 1928, and I ask you if that refers to that same invoice which is now marked Defendant's Exhibit NNN?

A. I would not know that unless it was attached to the invoice.

[fol. 270] Q. 13. Well, it was attached before I handed it up to you. Here is the invoice.

A. Yes, it refers to that invoice.

Q. 14. Do I understand that this invoice of August 14, 1928, was the first shipment of center spot crowns that the defendant made to you?

A. That I don't remember.

Q. 15. Well, it was one of the earliest shipments?

A. One of the earliest shipments.

Q. 16. Do you remember having any trouble with one of the early shipments that the defendant sent you, in having the center spots come off?

A. Yes, quite a few of them.

Q. 17. Do you recall whether that invoice is for that shipment with which you had trouble or not—have you any way of telling?

A. I have no way of telling.

Q. 18. Now, this stamp on the righthand corner indicates—it is the stamp of the Goetz Brewery Company—what does that indicate?

A. It indicates the date it was received.

Mr. Warland: I offer this credit memorandum in evidence.

(Marked Defendant's Exhibit OOO in evidence.)

Q. 19. I show you an invoice dated August 23rd, from the Gutmann Company to the Goetz Brewing Company for 100 gross of crowns and I ask you if you got the goods mentioned in that invoice?

A. Yes, sir.

Q. 20. And you used them?

A. Yes.

Q. 21. Did those have center spots?

A. Yes.

Mr. Warland: I offer this invoice in evidence.

[fol. 271] (Marked Defendant's Exhibit PPP in evidence.)

Q. 22. I show you an invoice from the Gutmann Company to the Goetz Brewing Company dated August 31, 1928, for 25,000 gross of special crowns and I ask you if you got those goods and kept them and used them?

A. Yes.

Q. 23. And those had center spots like the exhibit I showed you?

A. Yes, sir.

Mr. Warland: I offer that invoice in evidence.

(Marked Defendant's Exhibit QQQ in evidence.)

Q. 24. I show you an invoice dated September 21, 1928, for 200 gross and I ask you the same question as to whether

the Goetz Company got those goods from the defendant and used them?

A. Yes, sir.

Mr. Warland: I offer that invoice in evidence.

(Marked Defendant's Exhibit RRR in evidence.)

Q. 25. I show you an invoice dated October 26, 1928, for 29,000 gross decorated crown discs, and ask you whether you got those from the defendant Gutmann, whether they had a metal foil center spot and whether you used them?

A. I can't tell whether we received them unless there is an acknowledgment. There should be an acknowledgment. You see there is no way for me to tell we received them.

Q. 26. Will you look at this file which you brought us, [fol. 272] Mr. Ketterer, and see if you can find what you want in there?

A. (Examining papers.)

Q. 27. Can you answer the question now?

A. Yes.

Q. 28. The answer is you did get them and use them?

A. Yes. You see the invoice does not show.

Mr. Warland: I offer this invoice in evidence.

(Marked Defendant's Exhibit SSS in evidence.)

Q. 29. I show an invoice dated October 27, 1928, from defendant Gutmann to you for 2000 gross special decorated crowns. Did they have center spots and were they used by you?

A. Unless I have the acknowledgment I cannot tell.

(Counsel hands papers to witness.)

The Witness: It is not here.

Met pursuant to recess at 2:00 p. m.; present as before.

ALVIN M. KETTERER, resumed:

Direct examination continued.

By Mr. Warland:

Q. 30. Mr. Ketterer, I hand you a bundle of papers including invoices from Gutmann to Goetz, and would you be

good enough to separate the invoices from the other papers, assuring yourself from the check marks or whatever you have there that they were received by your company, and [fol. 273] then give me the invoices and I will put them in one batch to save time.

A. Yes, sir, you just want the invoices?

Q. 31. Yes.

A. (Witness examines and separates papers.)

Q. 32. I show you a bundle of invoices running November 24, 1928, to November 6, 1934, from the defendant Gutmann to the Goetz Brewing Company. Can you state whether all the center spot crowns mentioned in those invoices were received by the Goetz Brewing Company and used by them?

A. Yes, sir.

Q. 33. I notice on April 1, 1934, there is an invoice included in this bundle in which the crowns are designated as "Stay Stuck." Is there any difference between the Stay Stuck crowns and the other crowns so far as you know?

A. I do not really know much about the method of sticking them, if that is what you mean.

Q. 34. Do you know whether there is any different adhesive used in sticking the spot on in Stay Stuck crowns than in the others?

A. I do not know.

Q. 35. Were these Stay Stuck crowns perfectly satisfactory?

A. Yes, sir.

Q. 36. Would you say whether they were any better than the gutta percha, or couldn't you say?

A. Well, if the gutta percha was what we were using before I would say they were.

Mr. Warland: I will offer this bundle of invoices in evidence as one exhibit.

(Marked Defendant's Exhibit TTT in evidence.)

Q. 37. Those invoices you have handed up, do they show all the goods you bought from the Gutmann Company during those dates, or are there others?

A. That I can't say, I can't recall all the goods that we received.

Q. 38. Did the Goetz Brewing Company buy center spot crowns from any other crown manufacturers?

A. Not during that time; part of the time they did but not in the first part.

Q. 39. Am I to understand that since 1928 you bought your center spot crowns solely from the defendant company?

A. Up to I think about two years ago we did; since then we have bought others.

Q. 40. From whom have you bought the others?

A. The Crown Cork & Seal Company.

Q. 41. You are buying now as I understand it, from both companies?

A. Both companies, yes.

Cross-examination.

By Mr. Scull:

X Q. 42. The first invoice that you recognized there, Mr. Ketterer, dated August 14, 1928, that was for 100 gross?

A. Yes.

X Q. 43. What had you been using before that?

A. The natural cork.

X Q. 44. Where had you been buying those from?

A. We were buying those from Mr. Gutmann.

X Q. 45. What was the reason for this 100 gross, why only 100 gross?

A. That is hard to recall. It might have been a sample order, I cannot say.

X Q. 46. You would consider 100 gross a sample order?

A. Oh, yes.

X Q. 47. And that is the usual thing, to buy a small lot like that for test purposes?

A. Yes.

X Q. 48. Even 200 gross, you would consider that a sample lot also?

A. Yes.

X Q. 49. Purely for test purposes?

A. Yes.

[fol. 275] X Q. 50. And that is the usual thing in the brewery business?

A. Yes.

X Q. 51. Now, prior to your buying your natural cork crowns from Gutmann, what had you been using?

A. We were using natural cork.

X Q. 52. Who did you get them from?

A. The Crown Cork & Seal.

X Q. 53. Why did you go from the Crown Cork & Seal to Gutmann for the natural cork crowns?

A. It was a matter of a better grade of cork.

X Q. 54. You were having some trouble with the Crown Cork & Seal natural cork?

A. Yes.

X Q. 55. And then you went to Gutmann?

A. Yes.

X Q. 56. And did you still have trouble with the natural cork?

A. Did we?

X Q. 57. Yes.

A. Afterwards, later on we did.

X Q. 58. The natural cork that you got from Gutmann?

A. Later we did.

X Q. 59. When you began to use the spot—

A. When we changed over from the Crown Cork & Seal Company and bought from Mr. Gutmann we did not right at that time have trouble but later on trouble developed.

X Q. 60. In other words his natural cork commenced to give you trouble?

A. Later on.

X Q. 61. Do you know how it came about that you turned to spot crowns?

A. No.

X Q. 62. You don't know whether Gutmann suggested that you could overcome the trouble with his natural cork by buying a spot crown?

A. I cannot recall how it came about. I know we made a lot of tests at different times on spot crowns.

X Q. 63. Now, these spot crowns that were used, were natural cork or composition?

A. They were natural cork at first and then we went to composition.

[fol. 276] X Q. 64. Weren't spot crowns always composition cork?

A. No.

X Q. 65. You turned from natural cork to composition cork?

A. Yes.

X Q. 66. And you found that just as satisfactory as natural cork, when it had spots on it?

A. Yes.

Redirect examination.

By Mr. Warland:

R. D. Q. 67. I show you two letters on the letterhead of the Goetz Company, dated August 22nd, 1928, and August 23, 1928, written to the Ferdinand Gutmann Company. Do those letters refresh your recollection as to the date of that trouble?

A. What trouble do you refer to, the date of which trouble?

R. D. Q. 68. Mr. Scull was asking you about trouble that you had with some of the crowns?

A. Loose spots?

R. D. Q. 69. Yes.

A. Of course that was on one occasion. There were numerous occasions. That letter shows only one occasion I suppose.

R. D. Q. 70. After that occasion in 1928 did you have much trouble with your spots sticking on?

A. Yes, we had it right along.

R. D. Q. 71. How about since you obtained the Stay Stuck crowns, have you had any trouble with those?

A. No, we don't have any with those.

R. D. Q. 72. Mr. Scull spoke of a small sample shipment of 100 gross or 200 gross.

A. Yes.

R. D. Q. 73. You paid for those and used them?

A. Yes.

R. D. Q. 74. For instance that first invoice of yours for 100 gross, you paid for those?

A. Yes, they were paid for.

[fol. 277] R. D. Q. 75. Have you had any more trouble with Gutmann's crowns than anybody else?

A. Well, we used nothing but Gutmann's for a number of years and we could not say. Since then we have had trouble with others.

R. D. Q. 76. The crowns that Gutmann shipped you were sufficiently satisfactory for you to continue business with him right up to the present time?

A. Yes, but we had to recondition some of them.

R. D. Q. 77. Do the two letters that I showed you have any bearing on the question of reconditioning?

A. That letter did not (indicating letter dated August 22nd). This letter, yes.

R. D. Q. 78. I show you a circular put out by the defendant Gutmann and I ask you if you remember receiving a circular like that?

A. Yes.

R. D. Q. 79. And do you remember about when you received such a circular as that?

A. No, I do not.

Mr. Warland: I offer this circular in evidence.

(Marked Defendant's Exhibit UUU in evidence.)

Mr. Warland: I also offer those two letters dated August 22nd and August 23rd, 1928, in evidence.

(Marked Defendant's Exhibit VVV in evidence.)

Recross-examination.

By Mr. Scull:

R. X Q. 80. Referring to these letters VVV, my understanding is that your trouble with the plain cork was because it produced a taste in the beer?

A. That was the natural cork, yes, sir.

[fol. 278] R. X Q. 81. I should have said natural cork?

A. Yes.

R. X Q. 82. There is a reference here to having received a trial lot. That was the 100 gross I suppose—called a trial lot.

A. I don't know, we had so many trial lots I cannot recall.

R. X Q. 83. You would call 100 gross a trial lot?

A. It would be, yes.

BENNO COHN, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. Are you employed by the defendant, Ferdinand Gutmann & Company?

A. I am.

Q. 2. How long have you been there?

A. Since 1920.

The Court: What is your position?

The Witness: Secretary and in charge of production and purchases.

Q. 3. Does the defendant, Ferdinand Gutmann, make goods other than center spots?

A. Yes.

Q. 4. What other kind of goods do they make?

A. Make crowns without center spots, both with natural and composition cork. We make other bottle caps such as screw caps and special caps, milk caps, water caps and caps for certain special purposes; and metal boxes and miscellaneous metal stampings, small metal boxes, such as pill boxes.

[fol. 279] Q. 5. About what proportion is the crown cap part of the business in comparison with the other business?

A. Approximately one-third.

Q. 6. Of your bottle crowns for beverage purposes, about what proportion are center spots and what proportion crowns without the center spots?

A. In late years most of them have been with center spots, I should say probably ninety per cent.

Q. 7. Of the center spots you make what percentage would you say are metal-foil center spots and what percentage glazed paper center spots?

A. About 90 to 95 per cent. are metal-foil spots, and five to ten per cent. paper spots.

Q. 8. Are these crowns made under your supervision?

A. Yes.

Q. 9. Have you actual personal knowledge of the beginning of manufacture of center spot crowns by the defendant company?

A. Yes.

Q. 10. And you have had charge of the details of manufacturing?

A. I have had general supervision of the manufacturing and purchasing. Our superintendent, Mr. Rasmussen, is on the floor as master mechanic and shop superintendent. I am familiar with the process of manufacture.

Q. 11. Who else is connected in the manufacturing end of the company besides yourself?

A. Mr. Rasmussen, our superintendent.

Q. 12. Have you got anybody else, any chemists or anybody else?

A. Mr. Eisen.

Q. 13. What is his position?

A. In charge of research and development work, and in charge of cost calculation under my supervision.

Q. 14. Do you know when the defendant Gutmann first made the center spot crown?

A. Yes, in 1924.

[fol. 280] Q. 15. You heard Mr. Evans testify as to the purchases by him from you of center spots in 1924 and 1925?

A. I did.

Q. 16. Both of the gutta percha and metal foil center spots?

A. Yes.

Q. 17. Did you have charge of the manufacture of those goods?

A. Yes; as I say, I had general supervision; Mr. Rasmussen is directly in charge of the floor.

Q. 18. Were the goods made on the dates mentioned in those invoices produced by the Inecto Company, for instance?

A. Yes, they were shipped on those dates and made shortly before.

Q. 19. There has also been evidence given by Mr. Peters and Mr. DeLanoy as to the sale of gutta percha and metal-foil to your company, and by Mr. Macauley of the Reynolds Metal Company, and invoices were produced here. Were those goods bought on the dates testified to by those witnesses?

A. Yes.

Q. 20. And the goods were bought and paid for on the dates mentioned in those invoices?

A. That is right.

Q. 21. And the center spots were made and shipped at that time?

A. Yes; that merchandise was bought for the manufacture of center spot crowns.

Q. 22. Can you tell us as to the method of making these caps?

A. Yes. To start in, I think in 1924 we first made them for the Inecto Company, and they were made by scoring or cutting a groove, circular groove, in the cork disc in the crown, and pressing the edge or the flange of the center spot.

Q. 23. How was that groove cut, did you have any special die?

A. Yes.

[fol. 281] Q. 24. Where did you get that die?

A. We got that die from Berthold Nagy.

Q. 25. Was that the die Mr. Nagy produced an invoice to you people for?

A. Yes. The die was first delivered without the cork scoring mechanism with the idea of inserting the center spots by another method. About three weeks later, I think it was, the invoice shows the date, the die was altered and the cork scoring cutting knife was added. Shortly after that we made and shipped crowns with center spots of the Millis type, the White Rock type, to Inecto.

Q. 26. Could you say approximately how many you shipped at first of that Millis type, we will call it?

A. We shipped about 100,000 or a little more, I think, in December, 1924.

Q. 27. That is, with the cork scored and the disc inserted in the score in the disc?

A. Right.

Q. 28. Were those satisfactory to the Inecto people or were they not?

A. They were not.

Q. 29. Why not?

A. There were two reasons. One is we did not have satisfactory control over the cork scoring operation, with the result that in a percentage of the crowns the cork, instead of being scored, only part way through, was scored all the way through or almost all the way through. The other reason was that the bottles on which those crowns were used had rather wide mouths and rather narrow sealing surfaces, and the combined result of those two conditions was that in a percentage of the cases the entire center of the cork disc with the tin-foil center during the crowning operation,

when the cap was applied to the bottle, was forced into the neck of the bottle, and that defeated the purpose of the cap. [fol. 282] Q. 30. Then when you found that that method was not satisfactory, what did you do, how did you fasten the center spot on then?

A. We then changed to fastening the center spot by means of gutta percha.

Q. 31. Where did you get your gutta percha?

A. From the Bishop Gutta Percha Company.

Q. 32. Where did you get your foil from at that time?

A. We got the foil from the Beechnut Foil Company; they were in our building.

Q. 33. Was it metal foil or was it tin-foil or aluminum-foil?

A. Tin-foil.

Q. 34. And how did you fasten that on?

A. The gutta percha was mounted to the tin-foil for us by the Beechnut Foil Company. They delivered the mounted material to us in ribbons either 1 inch or $1\frac{1}{8}$ inches wide. We furnished the gutta percha to the Beechnut Foil Company, having bought the gutta percha from the Bishop Gutta Percha Company.

Q. 35. These ribbons one inch wide, do I understand that they consisted of a strip of metal foil with a coating of gutta percha on the underside secured and adhered to the foil?

A. Yes.

Q. 36. How did you cut your center spots out of those?

A. The center spots were cut out and inserted in a modified or altered Clark-Johnson type crown assembling machine.

Q. 37. Now, what do you mean by a Clark-Johnson type assembling machine, do you mean the machine that simply puts the lining in the metal cap?

A. Yes, a machine widely used in the business.

Q. 38. That machine simply secures the cork disc by some sort of an adhesive in the shell, is that right?

A. Right.

[fol. 283] Q. 39. Continue.

A. We altered that machine by providing a gas heater over the chute along which the previously assembled crown with the cork discs in them passed from a hopper to a rack or feeding mechanism that carried the crowns from one

station to another in the machine. The upper surface of the cork discs were heated by a gas flame on their passage down that chute. The paper feeding and cutting mechanism for feeding and cutting the paper collet that had been used in the Clark-Johnson assembling machine was removed, and the tin-foil cutting punch was substituted.

Q. 40. And where did you get that tin-foil cutting punch?

A. From Nagy.

Q. 41. On the date mentioned in the invoice put in evidence here yesterday?

A. That is right.

Q. 42. Continue.

A. A feeding mechanism for feeding the adhesive paper was changed to make it suitable for feeding the gutta percha coated tin-foil.

Q. 43. Then what happened to the cap?

A. The cap was positioned underneath the die that Nagy had furnished us. The tin-foil with the gutta percha coated on its underside was fed to that die. A punch descended and sheared the center spot from the ribbon of the gutta percha coated tin-foil.

Q. 44. Excuse me, was that punch hot or cold?

A. That punch was cold and positioned the center spot centrally in the crown on top of the pre-heated cork disc.

Q. 45. Then what happened?

A. From there a rack fed the cap past a position where there was another gas flame on the machine. That gas flame belonged on the assembler, the cork disc assembler in its [fol. 284] original condition and we did not remove the gas pipe. Whether we lit the gas at that stage or not I don't recall, I would say that if it proved necessary we heated the spot crowns after the center spot was applied and if we found that it was not necessary we did not light the gas flame and heat it. I am not sure. After that stage the cap passed the cork-inserting head on the assembling machine—the original assembling machine, which had been rendered inoperative, as we were not assembling cork discs.

Q. 46. Then where did the cap go?

A. It then went to a collecting drum consisting of a series of plungers which were actuated by a fairly heavy spring pressure that held the assembled cap with the center spot on it, under pressure for several seconds, about 12 I think

it was, until the center spot and gutta percha had cooled and the gutta percha had set.

Q. 47. And then what happened to the cap?

A. It was discharged on to a sorting table that carried the cap past the operator of the machine who would pick out the defective caps and from there to a packing case or carton.

Q. 48. Approximately about how many crowns with gutta percha centers did you make in 1924 and 1925, for the Inecto Company?

A. Approximately 340,000 of those caps.

Q. 49. And that covered a period of what dates?

A. From the latter half of January to the end of March about.

Q. 50. March of 1925?

A. 1925, that's right.

Q. 51. In the meantime had you made any effort to improve the method of putting the flange center spot into the cap?

A. Yes, we had.

[fol. 285] Q. 52. And did you succeed?

A. Yes.

Q. 53. And have you since then sold caps to the Inecto Company with a center spot in which the spot is secured to the cork disc by a flange on the center spot?

A. We have.

Q. 54. Do you know how many you have sold since 1925?

A. Over 20,000,000 caps.

Q. 55. And are you selling them today, with the same type?

A. Yes.

Q. 56. Have you had any complaints from them about the center spot coming out?

A. No.

Q. 57. Now, as I understand you you discontinued making gutta percha caps some time in March of 1925?

A. That is right.

Q. 58. When did you next make bottle caps with center spot crowns secured by gutta percha?

A. In 1928.

Q. 59. When in 1928?

A. In the Summer of 1928.

Q. 60. And who did you make those for?

A. The Goetz Brewing Company.

Q. 61. Is that the company that Mr. Ketterer just testified here that he was connected with?

A. Yes.

Q. 62. And how did you secure the center spot in its position on the crown cork in these '28 caps that you sold to the Goetz Brewing Company?

A. In the same, substantially the same method that we had used for the Inecto people except that at first the gutta percha and the metal foil were fed in separate ribbons.

Q. 63. Just a minute, by feeding in separate ribbons do you mean in the manner set forth in Fig. 3 of the Warth patent 1,899,783?

A. Yes. The machines were somewhat more refined when we were operating successfully, after our first experimental [fol. 286] work, on the Inecto machine because the quantities were larger.

Q. 64. And how long did you continue using that method of feeding the strip of gutta percha and the strip of foil into the machine simultaneously?

A. Something less than a year. As soon as I could get a convenient cheap and satisfactory source of supply for the mounted material—gutta percha mounted to an aluminum foil or paper as the case may be—I bought that material.

Q. 65. And is that the material which Mr. Peters testified about this morning?

A. Yes.

Q. 66. As I understand you that material was foil, one side of which was coated with gutta percha?

A. That is right.

Q. 67. And was the material cut into strips by you or was it cut into strips for you by the Peters Brothers?

A. It was cut into strips for us by the Peters Brothers.

Q. 68. And it came in spools approximately one inch wide?

A. That is right.

Q. 69. As I understand you you fed that material into the spotting die or whatever you call it on the machine?

A. That is right.

Q. 70. Now, going back to this first shipment to Goetz in 1928, when you began to make crowns for the Goetz Company, what was the method that you employed then?

A. The first machine that we obtained for the purpose, we obtained from the Johnson Machine Company.

Q. 71. Just a minute, was that the machine in Johnson's invoice of July 31, 1928, which I now hand you?

A. That is it. That covers the delivery of a machine on July 17th.

Q. 72. Now, will you describe that?

[fol. 287] A. That machine was, I would say, substantially like the photograph that was introduced before that I saw. It had a feeding mechanism, a hopper, into which the assembled crowns, that is, the metal shell with the cork disc assembled in it and stuck in it, into which these crowns were dumped. The crowns were fed from that hopper cork side up down a chute onto a dial and into a rack feeding mechanism. This mechanism carried the crowns past several plungers. The first one or two, I do not remember the exact number of plungers, the first one or two were electrically heated. The next one was not really a plunger, it was a center spot cutting die. That, if I remember correctly, had a heating element when Johnson sent us the machine, but we promptly took it out.

Q. 73. Why did you take it out?

A. Because it didn't work right.

Q. 74. Just a minute. As I understand you, then, in this shipment to the Goetz Company you used a cold cutting die?

A. Yes.

Q. 75. For cutting the center spot?

A. Yes.

Q. 76. Have you ever used a cutting die which was heated?

A. No.

Q. 77. All right, go ahead.

— The crown was next fed to a position underneath this cutting die. The strip of aluminum foil which we used and a separate strip of gutta percha which we used on that date were fed by a roll feed to this die where the center spot was cut out and deposited centrally on the pre-heated upper surface of the cork disc in the same manner that we had done for Inecto in 1925. From there the crown was fed by the rack to one or more additional plungers which, to the best of my recollection, were cold.

[fol. 288] Q. 78. This machine which you bought called for by this invoice of July—

A. I have the July, 1928, invoice.

Q. 79. Did the machine which you bought from Johnson, according to this invoice, did that have any collecting drum on it?

A. No, it did not.

Q. 80. Do I understand that when you made a certain number of crowns on this machine of the invoice of July 31, 1928, that you shipped them to the Goetz Company?

A. Yes. We had to work with the machine a little bit before we got it in condition that we thought was working properly, and early in August, I think it was, you have a record there, we shipped them 100 gross by express in order to get their approval before we manufactured large quantities.

Q. 81. What did you hear from them about that shipment of 100 gross?

A. Plenty; they were no good.

Q. 82. Were they satisfactory or were they not?

A. No.

Q. 83. Why weren't they satisfactory?

A. The spots fell off, the center spots fell off in their cleaning machine and in their crowning machine.

Q. 84. Between the date of that invoice you have there, is that July 17th?

A. The shipment is July 17th.

Q. 85. And the invoice which you next got from Johnson, had you ordered any machines from Johnson like that shown in that first invoice?

A. Yes, we had. When we made the first 100-gross test shipment, the crowns looked to us as though they would be satisfactory, and we wanted to get into production as quickly as possible, and when we thought we had a satisfactory product we ordered two more of those machines from the Johnson Machine Works.

[fol. 289] Q. 86. When you got complaints from the Goetz Company what did you do?

A. Mr. Rasmussen visited Mr. Johnson and we cancelled the order for those two machines and ordered instead a machine that had a collecting drum with pressure plungers.

Q. 87. I show you Defendant's Exhibit P, which is a bill dated August 28, 1931, from Johnson, calling for one tin-foil machine with standard drum. Did you get that machine from Johnson at about the date of the bill?

A. Yes.

Q. 88. After you got this machine called for by Exhibit P, did you have any more trouble with the spots staying on?

A. No, not appreciably, no more than you would get in ordinary manufacturing troubles.

Q. 89. Did you continue to ship the Goetz Company center spot crowns made on that machine covered by the invoice dated August 28th, Exhibit P?

A. Yes, for several years.

Q. 90. Did you get additional machines from Johnson?

A. We did.

Q. 91. In accordance with the bills shown in this Exhibit Q?

A. Yes.

Q. 92. Would you mind describing those machines? Are those the machines of the Johnson patent, as you understand it, No. 1,852,578?

A. Yes, the center spot inserting mechanism conforms with that.

Q. 93. Did they have any additional features than the center spot?

A. Yes, they had in addition to the mechanism for inserting the center spot, that was the same as on the previous machine, the mechanism for inserting cork discs into the metal shells after the manner of the Clark-Johnson type assembling machines that had been used in the industry prior to that time.

[fol. 290] Q. 94. Now, I show you an invoice from Johnson, dated March 18, 1931, marked Defendant's Exhibit X. Can you tell me what that is?

A. That is an invoice covering work that Mr. Johnson did for us on the first spotting machine that he delivered, the one covered by the invoice showing delivery July 17th. He changed that machine entirely into a machine for an entirely different purpose, for assembling some liners in some special caps.

Q. 95. Then, as I understand you, this first machine you bought on July 17th, without the drum, you only used for making center spots for a short time until you found they wouldn't stick, and then you got one with a drum, is that right?

A. That is right. I might add, later we salvaged what we could from the machine.

Q. 96. Now, Mr. Ketterer of the Goetz Brewing Company testified this morning as to sales of center spot caps made by the Gutmann Company to his brewery. Did you have charge of the manufacture of all those caps?

A. Yes.

Q. 97. And you know they were shipped on the dates mentioned in those invoices?

A. Yes.

Q. 98. Have you got factory orders or any books of your own besides those invoices showing the dates of shipment?

A. Yes.

Q. 99. Of these various goods, both to the Goetz Company and the Inecto Company?

A. Yes, we have our manufacturing copies of orders showing the dates of shipment, quantities, and so forth, and we have somewhere here the office copy of our orders which go into our sales binders and form our sales book, our day book.

Q. 100. What is your method of keeping track of the manufacture and shipment of goods in your company?

A. When an order is received it is typed by the order clerk and five copies are usually made. The first copy is our office copy and stays in the order clerk's file until shipment is made.

The second copy, a pink copy order goes to the factory and is used for the manufacture and shipping of the order.

The other is the third copy, the blue copy, which is used for keeping track of production, for our production report and it is used that way at the present time at any rate, and the fourth copy is the acknowledgment that is sent to the customer and the fifth copy, where necessary, is made for the salesman who gets the order.

Q. 101. Now, have you got your factory orders and shipping records of all these goods—of these center spot caps that were shipped both to Inecto and the Goetz Brewing Company?

A. I do not know that we have orders covering all of them, but we have orders covering the earliest ones here.

Q. 102. I do not mean orders from the customers—

A. I mean our orders. I do not believe I have here everything from the time we started on down to date, every single shipment but I believe you will find the earliest ones there, and probably typical shipments of later dates.

Q. 103. Now, when you began the manufacture of center spot crowns in 1924, did you know of your own knowledge of center spot crowns being made by other manufacturers?

A. Yes, we did.

Q. 104. And did you see them on the market?

A. Yes.

Q. 105. Did you actually see the crowns themselves?

A. Yes, I recall seeing the White Rock crown which was, [fol. 292] of course, quite common and in the plant of the Kalak Water Company, who were at that time on the lower floor in our building at Bush Terminal, we saw center spot

crowns both of the White Rock type and with center spots stuck with gutta percha to the cork disc.

Q. 106. Are you the patentee and inventor of the method shown in the Benno Cohn patent that is in suit here as a basis for a defense counterclaim, patent No. 1,921,808?

A. Yes, sir.

Q. 107. Now, what is the difference between the method described in that Cohn patent to you and the method that had been previously practiced by the Gutmann Company?

A. In the previous practice we assembled the cork disc into the metal shell of the crown in one operation, in the manner that was well known and commonly used in the industry at that time.

Q. 108. That would be what is known as the Clark-Johnson machine?

A. Yes, and then in a subsequent operation in a different machine or in some instances in the same machine at a different time, we inserted the center spots on to the cork discs.

Under the method of the patent issued to me the metal shell was dumped into a hopper and the shells came down a chute from the hopper, right side up—that is open side up—

Q. 109. You mean the empty shells, of course?

A. The empty shells, to a dial and from the dial they went into a rack feeding mechanism which carried the crown into successive positions.

In the first position a drop of adhesive or an adhesive treated paper collet was inserted into the shell. After that the shell was carried past a gas flame which heated the shell [fol. 293] and the adhesive inside of it. After that the shell was placed under a cork inserting head which inserted the cork disc into the shell on top of the heated adhesive. Then, the shell, with the cork disc in it, was passed under a heating mechanism which at one stage was a localized gas flame and at another stage of our manufacture consisted of electrically heated plungers by which the upper surface of the cork disc was heated. Then, the crown was placed under a center spot cutting die.

Q. 110. Was that a hot die or a cold die?

A. That was a cold die, it was just about the same as the die that Nagy had furnished us in 1924, that cut out from a ribbon and inserted centrally on the pre-heated cork disc, the center spot. The material of the center spot

consisting of an adhesive coated with gutta percha or other adhesive, spot material, it might be metal foil or paper, that was fed to the cutting die by a roller feed.

From there the crown, with the cork disc and center spot in it was carried past additional heating plungers to supply additional heat if we found it necessary and we found it convenient usually, and from there to a collecting drum where the assembled crown was held under heavy pressure while the entire crown cooled and the two adhesives set, that is the adhesive between the metal shell and the cork disc and the adhesive between the cork disc and the center spot.

Q. 111. That is, you got the greatest amount of pressure, the pressure necessary to adhere both lining to the shell and spot to the lining—where did you get that pressure?

A. Under the plunger in the drum, the collecting drum. The crown stays there for about eleven seconds under that pressure.

[fol. 294] Q. 112. And do you know approximately what that pressure is?

A. Yes, it is about 12½ pounds. We had a test made and I have a report somewhere from a testing laboratory on one of the springs actuating the plunger in the drum.

Q. 113. And that plunger, as I understand your testimony, is the only step in the method where a great deal of pressure is applied?

A. That is right.

Q. 114. Didn't the defendant, Gutmann, so far as you know, in making center spot caps at any time apply simultaneously both heat and pressure to the spot?

A. No.

Q. 115. Now, as I understand you, when those caps come out of the rack after lining in the spot, they are of course hot, aren't they?

A. Yes.

Q. 116. Where are they cooled off?

A. In the collecting drum under the pressure of a plunger. That drum is kept as cool as possible by an air blast.

Q. 117. That is, you depend on artificial cooling means rather than the temperature of the room, or in addition to the temperature of the room?

A. Yes, in addition to the temperature of the room; that is especially useful in the summer time.

Q. 118. Do you know when the defendant company first used this 4620 adhesive?

A. Yes.

Q. 119. When was that?

A. In May, 1932, I would say we used it at that time, but I do not say that we used it for center spot crowns at that time, but we used it.

Q. 120. What were the circumstances that first brought to your knowledge this 4620?

A. We used, had used for quite a variety of adhesive in connection with our Filmaseal.

[fol. 295] Q. 121. That Filmaseal has something to do with center spots?

A. No, it is a kind of screw cap. A salesman who called on us from the duPont Cellophane Company informed our Mr. Eisen of an adhesive that was made by the parent company, the duPont Company, that was heat-fusible, and that he thought might be useful to us in connection with that work. Mr. Eisen wrote to the duPont Company, inquiring in regard to it, and received a letter from them telling about—

Q. 122. Just a minute. I show you a letter from the duPont Company, dated May 12, 1932, and ask you if that is the letter you are referring to?

A. Yes.

Mr. Warland: I offer that in evidence, if your Honor please.

The Court: Received.

(Marked Defendant's Exhibit WWW in evidence.)

Q. 123. Did you buy at that time, or about the date of that letter, any of this 4620 adhesive?

A. At that time I believe we received only a sample lot from duPont.

Q. 124. What do you call a sample lot, how much?

A. I think it was a gallon, I am not sure, it might have been less.

Q. 125. Did you try it for use on your Filmaseal caps?

A. We did.

Q. 126. Was it satisfactory?

A. It did not answer, it was not satisfactory for any demand that we had at that time.

Q. 127. Why not?

A. It required, after its application, that it be allowed to [fol. 296] dry and then be heated, and then cooled under pressure in order to stick properly. And we did not have any demand in connection with the Filmaseal for an adhesive of that nature. We continued some experimental work in connection with it, though.

Q. 128. When was the matter of using that 4620 for adhering center spots first taken up?

A. I would say it was taken up sometime between May, 1932, and January or early February, 1933, and to the best of my recollection it was in the fall of 1932 that we paid fairly active attention to using it for crowns.

Q. 129. What did you first do in its application to center spots?

A. Mr. Eisen made samples, coated material and cut out—

Q. 130. Did you see that yourself?

A. Yes.

Q. 131. It was done with your knowledge and you saw them?

A. Oh, yes, yes.

Q. 132. How were they cut, by hand or how?

A. They were cut either by hand or with a small die, or with an experimental die in the laboratory, and inserted by hand on the cork disc.

Q. 133. When did you first run that 4620 in a machine?

A. In February, 1933.

Q. 134. That was on an experimental run?

A. Yes, there were a few gross of crowns made and a report made by Mr. Eisen on the subject at the time.

Q. 135. What did you do to test the suitability of that material as an adhesive for center spots?

A. We put it through several tests. We first, of course, examined the crown to pull the spots off to see how tight they stuck and compared them with the gutta percha we had been using as an adhesive. At a later time, slightly later time, we took a batch of crowns, several gross of [fol. 297] crowns, and put them in a rotating drum and tumbled them in order to simulate the action of the hopper of a crown machine. We applied the crowns to bottles, and removed the crowns to see that the center spots were properly adhered. We applied the crowns to other bottles and tested those bottles at pasteurizing temperatures, and then cooled them down, examined the center spots to see that

they were properly adhered. We left the—left crowns with center spots made with the 4620 adhesive alongside of other crowns made at the same time—

Q. 136. With what?

A. What is that?

Q. 137. With what were the other crowns made?

A. With gutta percha, and left them for a period of time and compared the strength of the bond of the center spot on the cork disc on the two different kinds of crowns after a considerable period of time, and more particularly we did the same thing and heated the two sets of crowns to a temperature of approximately 100 degrees Fahrenheit to simulate summer conditions, which were particularly severe on that.

Q. 138. What did these tests demonstrate? Did they demonstrate that the 4620 was any better than the gutta percha or as good as gutta percha or not so good?

A. It demonstrated to us it was just about as good immediately after the crowns were made, and that after a period of time, particularly when subjected to warm conditions, it was appreciably better, the gutta percha deteriorated.

Q. 139. Why was it better, did the center spots stay on better with this 4620 than with gutta percha under the same conditions?

A. Yes, the center spot in the gutta percha crowns deteriorated considerably.

[fol. 298] Q. 140. Now, did you make any sample shipments of center spot crowns in which the spot was secured by the 4620 as an adhesive?

A. Yes.

Q. 141. And who did you make those to and when?

A. In May of 1933 and early June of 1933 we sent our representative to two different breweries with sample lots of ten and twelve gross each and requested the bottling departments of each of those breweries to run those crowns in the same manner as other crowns and apply them to bottles and put them through the pasteurizer.

Q. 142. Can you give the names of those breweries?

A. Yes, the West End Brewery of Utica, New York, and the Rubsam & Horrmann Brewery on Staten Island.

Q. 143. Go ahead.

A. We received reports that the crowns were satisfactory

and in connection with one of those tests we got back a dozen or two samples of bottles of beer.

Q. 144. And did you do anything about testing the bottles in which the center spot was secured by the 4620, for pasteurization?

A. Yes.

Q. 145: What did you do about that?

A. We did three things.

Q. 146. What were they?

A. First we filled some bottles with water in our own laboratory and as I believe I stated a minute ago we heated them to pasteurizing temperature and allowed them to cool, and examined them.

Secondly we made the trial shipments that I just described to the two breweries and in the course of the use of those crowns they were applied to bottles and the bottles were sent through the pasteurizer in regular fashion.

[fol. 299] The third thing we did was to send samples of crowns with center spots adhered with 4620 and samples of crowns with center spots adhered with gutta percha to the Schwartz Laboratories in New York who are recognized as a brewery laboratory and we asked them to test the two types of crowns, on beer, and give us a report as to the comparison between the two, as to their suitability for use on beer, and that included of course pasteurization.

Q. 147. Have you got that report of the Schwartz Laboratories?

A. Yes.

Q. 148. Does that refer to 4620 or is there any way of telling from that report what the adhesive was?

A. The report does not refer to 4620 but there is a way of telling.

Q. 149. Did the laboratory know whether it was 4620 or not?

A. They did not know, they only knew that we shipped them two types of crowns.

Q. 150. And these two trial shipments were made to separate breweries, the ones that you just testified about, there was no way that those breweries could tell what the type of adhesive was, could they?

A. They could not.

Q. 151. No one could tell by mere inspection what the type of adhesion was?

A. No, I would say not, especially if he does not pull the center spot off.

Q. 152. Now, when did you get your center spot crowns shipped commercially in which the center spot was secured by 4620?

A. In July of 1933, early July.

Q. 153. And who was the first shipment to then?

A. The first shipment was to the Peter Hand Brewing Company in Chicago.

Q. 154. How big a shipment was that?

A. 100 gross.

[fol. 300] Q. 155. When did you make the next one?

A. The next one was made to the Cerat Brewing Company in Nashville, Tennessee.

Q. 156. When was that?

A. Also in July of 1933. One was early and the other a week or ten days later.

Q. 157. How large were these last two shipments you referred to?

A. They were each about 100 or 150 gross, perhaps 200 gross.

Q. 158. Well, after you found this 4620 was satisfactory as an adhesive did you discontinue the use of gutta percha?

A. As quickly as we could with due regard for our commercial requirements and necessity of keeping on with manufacturing. That is with reference to metal foil.

Q. 159. Why didn't you use 4620 for glazed center spots?

A. We have not found it worked satisfactory with varnished paper.

Q. 160. Well, why doesn't it work, have you any idea?

A. I have, but that is a theory.

Q. 161. Well, you don't know?

A. Yes.

Q. 162. Did you ever see any officers of the plaintiff company, the Crown Cork & Seal Company at the defendant's factory?

A. Yes.

Q. 163. When was the first time you saw them there?

A. That was late in April of 1933.

Q. 164. And who was there at that time?

A. Mr. Fusting and Mr. Nagle.

Q. 165. And did you talk with them at that time?

A. No, I did not, I saw them come in and my father spoke with them.

Q. 166. Now, when did you at a subsequent time see anybody connected with the plaintiff company, at defendant's plant?

A. On August 8th, 1933.

[fol. 301] Q. 167. Who was there then?

A. Mr. Fusting and Mr. Darby their counsel and Mr. Wentworth our patent attorney.

Q. 168. Can you state the substance of the conversation that occurred on August 8, 1933, between the people who were there. Who else was there representing your company?

A. Mr. Ferdinand Gutmann, myself and while we were in the factory, Mr. Rasmussen.

Q. 169. At that call on August 8th, 1933, did the plaintiff see your method of making caps?

A. Yes, that is what they came for.

Q. 170. And were they shown a machine for making caps for commercial production?

A. Yes.

Q. 171. And what materials were you using at that time?

A. For the center spot?

Q. 172. What adhesive?

A. No. 4620.

Q. 173. What was the material, foil or paper?

A. Aluminum foil.

Q. 174. And were samples given to Mr. Darby and Mr. Fusting, of the material coated with No. 4620?

A. Yes.

Q. 175. And did you give them any caps in which the center spot was secured by No. 4620?

A. We did.

Q. 176. Now, at this date of August 8th, 1933, what method of making caps were you using, were you making them according to the so-called Benno Cohn method or were you making them on the old Clark-Johnson machine?

A. We were making them according to the Benno Cohn method.

Q. 177. And was any remark made by either Mr. Fusting or Mr. Darby as to that method?

A. Yes, they stated that they had never seen that method used before.

[fol. 302] Q. 178. Did they inquire whether it was patented or not?

A. They did.

Q. 179. What did you tell them?

A. We told them that it was. They asked if they could have the number of the patent and they were told that the patent was just being issued that day.

Q. 180. Was anything said by either Mr. Fusting or Mr. Darby about buying the patent?

A. Yes, in the course of the conversation after we had returned from the shop, into the office, after inspecting the machine in which the crowns were being made, Mr. Darby inquired as to whether we could be interested in selling our patent and I answered that we would of course if we were paid enough for it.

Q. 181. And were any figures mentioned?

A. Yes, I had said that I had not given the matter a thought and it was an offhand answer. Mr. Darby wanted to know whether we would be interested in it for \$5000 for the patent.

Q. 182. What did you say to that?

A. I said no.

Q. 183. What else did he say?

A. Then he asked if we would be interested in \$10,000 and I said no. Then, as near as I can recall he remarked, "Well, of course, if we would pay you a million dollars you would, but we wanted to know if you had any figure in mind," and I replied that I did not, that I had not given the matter a thought, that I was talking offhand and that my offhand opinion was in view of the fact that the value of the method lay largely in effecting a saving in manufacture the logical arrangement would be a royalty of a certain amount per gross of crowns which would be a fraction of that saving.

Q. 184. And did you adopt any trademark for center spot [fol. 303] crowns in which the center spot was secured by this 4620 adhesive?

A. Yes.

Q. 185. And what was that trademark?

A. We called it "Stay Stuck."

Q. 186. And did you send out any circulars or literature to that effect?

A. Yes.

Q. 187. I show you Exhibit UUU, is that one of the circulars you sent out?

A. Yes.

Q. 188. When did you send that out?

A. About September, 1933.

Q. 189. When was the first time that you personally knew of any charge of infringement by the Crown Cork & Seal Company against you of any of its patents?

A. In March, 1933, I believe it was.

Q. 190. Did they subsequently write or call and ask you to join in a license agreement?

A. Yes.

Q. 191. You never signed that license agreement, did you?

A. No, we did not.

Q. 192. Have you tabulated the gross shipments of crowns made by the Gutmann Company from 1924 to 1934?

A. Yes, through 1934. From 1924, no; I have since 1928.

Q. 193. All right, let us see what you have got there.

A. Yes, right here. Here you are.

Q. 194. This does not include the Inecto, does it?

A. Yes, that does.

Q. 195. Only from 1928?

A. Yes. If you want the shipments to Inecto, I think we could dig it out from 1924 to 1928.

Q. 196. You haven't got the shipments to Inecto from 1925 to 1928 on this list?

A. That is right.

Mr. Warland: I offer that in evidence.

(Marked Defendant's Exhibit XXX in evidence.)

[fol. 304] Q. 197. Now, if you are handed the factory orders and shipping orders for these various shipments to the Inecto and Goetz and other people can you identify them?

A. Yes.

Cross-examination.

By Mr. Scull:

X Q. 198. First taking up this 1924 incident for Inecto, is the machine which you used at that time still in existence?

A. Not in the shape that we used it at that time.

X Q. 199. Any part of it?

A. Yes.

X Q. 200. What part of it?

A. I would say the body of the machine, the cork scoring knife and inserting mechanism as we used it to produce the White Rock type of cap is still in existence today. Some of the feeding mechanism has been changed.

X Q. 201. Just what did you do? I am interested now naturally in the gutta percha strip, attachment. How did you have the feed mechanism for that strip?

A. To the center spot cutting punch?

X Q. 202. Yes.

A. That was a mechanism consisting of reciprocating fingers that pulled the strip through the cutting die, or, rather, over the die and under the punch through the guide in the cutting die so as to feed a suitable portion of the strip material to the die at the stroke when the center spot was punched out. These fingers opened and closed at appropriate motions so that on the forward movement of the fingers the strip material was advanced and on the backward movement of the fingers the fingers opened up so that they no longer gripped the material, and they moved backward without disturbing the scrap material.

[fol. 305] X Q. 203. What was the difference between that feed than as it had been originally on the Johnson machine for feeding the paper collet, after you added it, when you were feeding the gutta percha foil?

A. When we fed the paper for the paper collet the paper was pushed into the die by means of a finger that engaged the paper by friction, and on the under side of the paper with a stationary guide. In other words, that paper was stiff enough that where there was a stationary guide, as, let us say, the arm of this chair, and the finger came down on the paper, this is the solid portion of the paper before the disc had been cut out of it, engaged the strip of paper which was resting on that guide and pushed it forward, this paper would advance satisfactorily into a position for a disc to be cut out with the die. In the case of tin-foil with gutta percha coated on its under side the material was so flexible that any such mechanism was unsatisfactory for the purpose. Therefore, in order to position an uncut portion of the ribbon or strip in the cutting die properly, we provided fingers behind the cutting die, that is, in the position of the strip material where it was full of holes after the spots had been cut from it, and we pulled it through, we pulled through

this strip portion, as I call it, of strip material a suitable distance in order to bring the uncut portion of the ribbon in proper position with respect to the cutting die.

X Q. 204. That involved a considerable change in the feeding mechanism that was on the original Johnson machine?

A. Yes.

X Q. 205. Where was that change made?

A. In our shop.

[fol. 306] X Q. 206. By whom?

A. Well, mechanics under the supervision of Mr. Rasmussen.

X Q. 207. Can you mention some of those mechanics, give their names?

A. I do not recall right now; Mr. Rasmussen, our shop superintendent, had charge of it.

X Q. 208. Can you ask Mr. Rasmussen who the mechanics are now? I would like to get that on the record now.

A. I can ask him; I do not know whether he knows.

Mr. Scull: Can you mention some of the mechanics who worked on that job in 1924?

Mr. Rasmussen: Offhand, I do not know, I would not be able to say who worked on it now, but I can look it up.

Mr. Scull: Do you remember any of them?

Mr. Rasmussen: I do not remember them now.

Mr. Scull: I want to know who they were.

Mr. Rasmussen: I do not know; I can look up the records.

The Court: He is not under oath.

Mr. Scull: I understand.

X Q. 209. And that changed mechanism is where today?

A. In our shop.

X Q. 210. You have got that changed feed mechanism?

A. Yes.

X Q. 211. Can you produce it?

A. Well, it would be easier to take you up there to look at it.

X Q. 212. Is it still on the machine?

A. Yes.

X Q. 213. What are you using it for at the present time?

A. The same purpose without the gutta percha, the same [fol. 307] feeding mechanism was used to feed to the cutting die a strip of tin-foil with gutta percha as was used both before and after to feed a similar piece of tin-foil without any gutta percha.

X Q. 214. Now, in order to do that you had to change it from one side of the machine to the other?

A. In changing it from the paper collets—

The Court: You changed it so you pulled it instead of pushed it?

The Witness: Yes.

X Q. 215. That meant, did it not, that the feeding stroke was away from the center line of the line of travel of the caps in that machine?

A. No, it was perpendicular to the line of travel of caps.

X Q. 216. But the feeding stroke was away—

A. Away from the machine.

X Q. 217. Whereas—

A. And on the opposite side.

X Q. 218. Whereas when you were feeding the paper collets the feeding stroke was toward the center of the machine?

A. That is right.

X Q. 219. What did that involve so far as the change in that feeding mechanism was concerned? Did you just take the whole feeding mechanism and bodily bring it over to the other side of the machine?

A. No, it is a different feeding mechanism, different fingers, I believe different levers and different connections to the actuating mechanism.

X Q. 220. You have still got that?

A. Yes.

X Q. 221. You have still got that?

A. Yes.

X Q. 222. Still in use?

[fol. 308] A. Yes, we have both types on the machine at different times today just as years ago. We use that machine for different purposes at different times. We use it for assembling cork discs into the metal shells to produce a cap without a center spot and then at other times we use it for inserting the center spots into those assembled crowns.

Part of the crowns that we ship to Inecto have center spots, about one-half, and the other part do not have center spots.

X Q. 223. It seems to me that when you are feeding the paper collet at the time that you are making the plain crowns the feed is in a different direction from what it is when you put it on the spot, is that right?

A. Maybe if you will give me a piece of paper—

X Q. 224. No, just answer my question.

A. May I have it again, please?

(Question repeated by the reporter.)

A. No, it is in the same direction. Here is the line-up of the machine like this, and I use this arm chair (indicating). When we are assembling cork discs into the crown we feed our adhesive paper along the arm of the chair into the machine like this (indicating).

X Q. 225. You push it?

A. We push it in a direction from me to you.

X Q. 226. And the mechanism is on the far side of the line of the machine?

A. The far side from you; yes. Now, when we feed tin-foil the mechanism is on the near side of the machine, toward you, and the mechanism still travels in a direction toward you, pulling the material through.

[fol. 309] X Q. 227. How does the mechanism on the same machine get from one position to the other? When I want to first make a plain crown and then later on to put spots on it?

A. We put it there. That is not quite correct. We render inoperative the mechanism on the one side and we install or render operative the mechanism that is on the other side, for the different purposes.

X Q. 228. Have you any drawings of that mechanism?

A. No.

X Q. 229. How far in this 1924 work that you have been telling us about did the crown with the spot on it travel to reach the drum, how long before it reached the drum?

A. I would say a distance of approximately three feet.

X Q. 230. By the way, at what rate did you operate that machine?

A. When inserting cork discs we operated it at the rate approximately of 200 per minute. When inserting center spots we operated it at approximately 160 per minute.

X Q. 231. And in that machine I think as you have described it the only reciprocating member was the punch that cut out the spot and placed it on the crown, is that right?

A. Are you speaking of the operation in which we inserted tin-foil with gutta percha?

X Q. 232. Yes.

A. That is correct, with one exception. The plungers in the collecting drum reciprocate a small distance.

X Q. 233. That was the only reciprocating member—this punch itself was the only reciprocating member you had at the point where the stop was applied to the crown?

A. The punch and the die.

X Q. 234. The die reciprocated?

A. Yes. The die was a self-contained unit, that is the [fol. 310] lower member of the die was attached to a sleeve. On the underneath side of the die was a locating member whose inside diameter was approximately the diameter of the center spot—slightly larger for clearance—and whose outside diameter was very slightly smaller than the inside diameter of the metal shell of the crown. Inside of that sleeve was the cutting punch. The sleeve, with the punch in it, was mounted in a holder. The entire holder with the die and its locating member and the sleeve and the punch inside of it reciprocated. Now, on the downstroke the locating portion of the die entered the crown shell. Its undersurface struck the upper surface of the cork disc and then the sleeve, with its punching die could no longer drop. The punch, however, continued to descend while the spring that controlled the action of the sleeve was compressed as the punch continued to descend and the center spot was cut out and deposited on the cork disc. That was the die that Nagy made for us.

X Q. 235. Is that die still in existence?

A. Yes.

X Q. 236. On the machine?

A. It is on the machine when we were inserting center spots.

X Q. 237. My understanding is that after February or March of 1925—

A. May I interrupt you a minute?

X Q. 238. Yes.

A. You asked me about the die in existence?

X Q. 239. Yes.

A. If you are talking about the die for gutta percha type it is the same die, but we have made slight alterations in its inserting member for making the White Rock type. After we got through making the gutta percha spots there was an [fol. 311] alteration necessary in the inserting plunger, in that cutting punch and that is different for the Millis type crown than it is for the gutta percha type. The insert plunger is flat with the gutta percha type, it simply deposits a center spot on the upper surface of the cork disc and in the

Millis type crown that plunger is shaped to shape the member when pushing it into the slot, the slot that is scored in the cork disc.

X Q. 240. So that it is a matter of pieces of metal then and that punching and centering mechanism that you say you used there in 1925 is not really now in existence?

A. What's that?

(Question repeated by the reporter.)

A. Oh, no.

X Q. 241. Can you take the mechanism about which you have just been telling us as being in existence today and put center spots with gutta percha on crowns with it?

A. We would first substitute a flat inserting plunger that is now on the inside of the punch.

X Q. 242. No other change?

A. That is all so far as the punch and die are concerned.

X Q. 243. How was it when you say Nagy changed what you called the Millis to the tin center dies which he had made under this invoice of November 1st, 1924, and which is Exhibit G, that you said he had to regrind that tin center die?

A. The die that he made and delivered to us on November 1st was not intended for the insertion of center spots of the Millis type, it was intended for center spots, I believe, that were to be adhered to the cork, I do not say with gutta percha, [fol. 312] but they were not to be of the Millis type. The method that we intended to use with that die did not work out very satisfactory so the die was sent back to Mr. Nagy and on the date of the next invoice, I think it is November 20th, he delivered an altered die, the same die that was altered and if I may see that invoice I will tell you the alterations.

X Q. 244. Here it is.

A. He made a cutter attachment on a tin center die. That is the cutting knife for scoring an annular slot or a circular slot in the cork disc. He made a cutting attachment on the tin center die, regrinding the tin center die. The diameter of the center spot on the die of November 1st invoice was the diameter that we wanted the center spot in the finished crown. We had intended to simply lay it down flat. When we wanted to make a flange on that center spot and dig it into the cork then we decided to maintain the same diameter of center spot on the finished crown that we had before and in order to do that we had to make the diameter of the

cutting die larger in order to provide the metal that went into the flange. The lower cutting edge, therefore, was re-ground, made larger, and a new punch,—that is the last item on the invoice,—a new punch was made in order to shear the disc through that enlarged die or lower cutting member.

X Q. 245. Then, as I understand it under that invoice of November 20th what Nagy was supplying you there was dies and punches for making what you call the White Rock type of crown or Millis type?

A. That is right. November 1st was for the cutting and depositing on the cork flat. The second, or the alteration changed that into a die to make a center spot of the Millis type.

[fol. 313] X Q. 246. And the change that he made was in the parts that he had supplied you under this date of November 1st?

A. Yes, he changed the November 1st die into what he delivered on November 20th.

X Q. 247. Now, turning to this 1928 episode and the machines that you purchased from Johnson, I do not know whether I have got my records correct or not, but my understanding was that this machine fed separate strips of tissue and of foil.

A. Yes, the machine as a machine was the same whether separate strips were fed into it or one coated material. There was a roll feed that pulled the strip of the ribbon through to position the material properly over the die.

X Q. 248. And you continued to use those separate ribbons, you said, about a year?

A. Something less than that.

X Q. 249. That is, until somewhere around the middle of 1929?

A. That is right.

X Q. 250. You said, describing this Johnson machine, that there were a number of punches.

A. Plungers.

X Q. 251. Plungers. I am not now talking about the plungers on the drum but along the line of travel. How many plungers were there?

A. About which machine are you talking?

X Q. 252. I am talking about the first Johnson machine that you bought.

A. I can't be sure of the number as the machine is no

longer in existence, and it has not been for some years, as it did not work satisfactorily. To the best of my recollection I think there were two plungers before the crown reached the cutting punch and two after. That may not be entirely accurate, but there were some of them, and I think [fol. 314] they were changed from time to time, that is, when the machine did not work exactly right when we first started, Mr. Rasmussen changed it to suit himself, and he tried to make it work right.

X Q. 253. You are aware, aren't you, that on this Exhibit 35 which Mr. Johnson identified as representing the first machine which he made in March, 1928, that there are only two plungers?

A. Yes; I saw that. I do not know, I cannot say—

X Q. 254. Your testimony is that sometime between the date when this machine was made and the date July 17th, when he sent you your machine, he had added a considerable number of plungers?

A. Yes, I believe so. Now, if he didn't do it, then we did, after we got it into the shop. I can't be sure now where it was done, but it was done.

X Q. 255. You are not sure at what time either?

A. It was some time before the date of the first shipment of those crowns that we made to the Goetz Brewing Company.

X Q. 256. How do you fix that?

A. There is an invoice in evidence.

X Q. 257. I mean, how do you fix that the change in the machine was made before that time?

A. We got the machine in order to make those crowns, and when we got that machine working so we thought it was right we shipped those crowns.

X Q. 258. You are very sure you did not make any change in the machine after you shipped out this hundred gross to Goetz?

A. Yes; we did; in 1931, we scrapped the crown part of the machine and changed into something entirely different.

X Q. 259. How do you know these added plungers were [fol. 315] put on before the first shipment to Goetz rather than after?

A. After we made the first shipment to Goetz, to the best of my recollection, we did not make any changes in that machine for crown spotting, and we came to the conclusion

that a machine without a collecting drum, with spring pressure actuated plunger, a machine without that was not adequate to do the job. 'In other words, in getting this machine we tried to make a short cut or get something cheaper than we would have had to get if we got something that was exactly the same as we used for the Inecto people in 1925. We tried it and it did not work.

X Q. 260. You bought from and accepted from Mr. Johnson a machine on July 17, 1928, which did not have this drum with the spring pressed plunger, although you knew from your experience in 1924 that such a thing was necessary, is that right? •

A. No, that is not correct. We knew from our experience in 1925, early 1925, that a machine with a drum with spring plunger would do the work properly. We sometimes learn more from our failures than from our successes. We had not yet learned from our own experience that a machine without such a drum would fail to work. In other words, the machine had a drum on there, we left it there as the thing to do, and that is the way it worked.

X Q. 261. And you had operated this machine in 1925 with one punch only and no plunger north or south of it along the line of travel?

A. That is right—

X Q. 262. Let me finish.

A. I am sorry.

X Q. 263. Yet you found very shortly after you put this machine of 1928 into use, that you had to have these additional plungers, is that right?

A. You are still talking about the first machine from Johnson?

X Q. 264. Yes. •

A. Yes, even with the additional plungers the machine did not work. The idea is this: The function of using plungers is to supply heat to the exposed surface of the cork disc or to the center spot itself after it is applied to the cork disc in order to make the adhesive tacky. In the case of the machine on which we made the Inecto caps, that heat was supplied by gas flame.

X Q. 265. And there was no heat by gas flame in the Johnson machine supplied you in 1928?

A. No; that is electrically supplied heat, and that was done by means of these reciprocating electric plungers.

X Q. 266. What are the plungers that follow the cutting part for?

A. In the case of that first machine?

X Q. 267. The first Johnson machine.

A. Yes, the first Johnson machine that did not have the collecting drum, to the best of my recollection those plungers were cold plungers and were expected to apply a pressure with their reciprocating motion, and they had, I believe, a heavy spring on them, supply a pressure to take the place of what the collecting drum had done in the machine for the Inecto caps in 1925. I believe they were cold plungers, and that was the purpose.

X Q. 268. At what speed would this Johnson machine run when you were putting on the hot spots?

A. I do not remember that.

X Q. 269. Can you give us an idea?

A. It would be a pure guess now. We made only a small quantity of crowns and they weren't satisfactory, and we abandoned the machine.

[fol. 317] X Q. 270. All right?

A. It would be a guess.

X Q. 271. At what speed did the second Johnson machine run?

A. About 200 a minute.

X Q. 272. That is about the same as you say the machine ran in 1925?

A. It is about the same speed as the machine ran in 1925 for inserting cork discs into the metal shells. I would say it ran a little slower, about 160 a minute, for any spotting operation. That is what it runs now.

X Q. 273. What did you pay for this Johnson machine in 1928?

A. The invoices are there. I believe the first one was \$1200.

Recess until Tuesday, November 12, 1935, at 10:30 a. m.

Brooklyn, N. Y., November 12, 1935.

Met pursuant to recess at 10:30 a. m.; present as before.

BENNO COHN, resumed the stand.

Direct examination continued.

By Mr. Warland:

Q. 274. I show you a crown cap marked Plaintiff's Exhibit 6, which has a center spot of hard glazed varnished paper. Did the Gutmann Company ever make and sell such spots?

A. Yes. We made, this has a natural cork; yes, I think we made them like that.

Q. 275. Did you also make them with composition corks?

A. We made them also with composition corks. Yes, this is one of ours.

[fol. 318] Q. 276. When did the Gutmann Company first manufacture center spot crowns of either natural or composition cork with a center spot of hard varnished glazed paper secured by gutta percha?

A. You mean commercially or experimentally?

Q. 277. Commercially.

A. Commercially, in March, 1930.

Q. 278. Had you made them before March, 1930?

A. Experimentally we had, just to assure ourselves that we would be able to produce them.

Q. 279. How much before March, 1930, had you made them?

A. About a year before, not quite. I believe you have in evidence an invoice from Peters Brothers Rubber Company to us for coating some of this material with gutta percha, and at about that time we used that material to run through a few crowns.

Q. 280. Who did you make the first shipments of these paper spot crowns to?

A. The Crown Cap Manufacturing Company.

Q. 281. Where are they?

A. They were within a few blocks from us in the Bush Terminal.

Q. 282. Did you ship any quantity of these glazed paper spot crowns?

A. Oh, yes, we made continual shipments from then on to Crown Cap.

Q. 283. Who else?

A. We shipped to Pabst Brewing Company, Welch Grape Juice Company, and later we shipped to others.

Q. 284. Are you still shipping large quantities to Welch Grape Juice Company?

A. Yes.

Q. 285. Approximately how many crowns would you say you shipped to the Welch Grape Juice Company in say 1931 and 1932?

A. In 1931, I believe we shipped Welch only a case of 200 gross; you have a tabulation there somewhere. In 1932, [fol. 319] we shipped them several carloads, I believe; a carload is 30,000 gross.

Q. 286. I show you a publication entitled, "Spot Crowns," which is an advertisement put out by the plaintiff, Crown Cork & Seal Company, and ask you if you have seen a publication like that?

A. Yes, I have seen them; I am not sure it is this one, but I have seen similar publications.

Q. 287. I notice it is stated on page 30 of that publication, "An important part of this work was the perfection by the C. C. S. Laboratories of a special composition disc called Canax which is especially suited for use in spot assemblies." Did you ever buy any Canax from the Crown Cork & Seal Company?

A. I don't believe we ever bought any Canax from the Crown Cork & Seal Company but they did solicit our business on Canax discs.

Q. 288. Have you got any document referring to that?

A. Yes, I believe we have. If you want to hand me that batch of papers I can find it for you, Mr. Warland.

Q. 289. I show you a letter from the Crown Cork & Seal Company addressed to the defendant, Ferdinand Gutmann Company, dated December 10, 1928. Did you receive that letter?

A. Yes, we did.

Q. 290. Prior to that time, had any of the plaintiff's representatives called upon you to try and sell you Canax cork?

A. Yes, they saw our Mr. Ferdinand Gutmann.

Q. 291. Was there anything said about it being especially adapted for center spot crowns?

A. Yes, they told us that is what they used for their spot crowns. There is an acknowledgment there attached to the sample lot.

[fol. 320] Q. 292. I show you a paper attached to that letter, please tell me what that is.

A. That is an acknowledgment of the Crown Cork & Seal Company of an order to ship us five gross of Cerax disc and five gross of Canax.

Q. 293. What is meant by Cerax?

A. That was a grade of composition cork which the Cork Crown & Seal Company used in their ordinary crowns that did not have center spots. The Canax was a grade used in crowns that did have center spots.

Mr. Warland: I offer the circular shown the witness in evidence.

(Marked Defendant's Exhibit YYY in evidence.)

Mr. Warland: I also offer in evidence the letter from the Crown Cork & Seal Company dated December 10, 1928, with the attached acknowledgment.

(Marked Defendant's Exhibit ZZZ in evidence.)

Q. 294. Now, you said something yesterday about the speed at which you make these center spot caps called for—shown in this litigation. As I recall you said it was approximately 200 a minute, is that right?

A. That's right.

Q. 295. Now, how many gross a day does that aggregate, in an 8-hour day?

A. About 700. We work a little more than 8 hours.

Q. 296. 700 gross in a working day?

A. That's right.

Q. 297. And does that speed include putting the cork in the cap and also applying the center spot, in one machine? [fol. 321] A. Yes, it does. That was the same speed we had previously run the separate machines.

Q. 298. Do you mean by that that previously each separate machine ran about 200 a minute?

A. Each machine ran about 200 a minute and we would get about 700 gross per day of center spot crowns out of the two machines, the combined product. Now, one machine gives us 700 gross of center spot crowns.

Q. 299. Going back to this adhesive 4620, I believe you stated on your direct examination on Friday that you got about a gallon of this early in 1932. I notice from the letter which was put in that it refers to a half pint sample.

A. Yes.

Q. 300. Do you wish to explain that in any way?

A. The letter is correct; in May, 1932, we got the sample that is described in that letter, a half pint. In April, 1933, we bought a gallon of material from them.

Q. 301. Was that sample of half a pint sufficient to adhere the center spots to approximately how many crowns or gross of crowns?

A. Why, if used efficiently that would probably be sufficient for around 30 gross of crowns.

Q. 302. As I recall your testimony Friday you said that you made an experimental run in February, 1933.

A. Yes.

Q. 303. Was that made with 4620 out of this half pint sample?

A. Yes.

Q. 304. Had you used any of that half pint sample for any purpose other than center spot crowns prior to the time you began experimenting on center spot crowns?

A. Not in any appreciable amount, not to use up any of the adhesive. Mr. Eisen used a little in the laboratory producing the hand samples of center spot crowns before we [fol. 322] ran them on the machine, and he may have used slight quantities out of that half pint for a few other experiments.

Q. 305. Regarding the first shipments which, as I recall it, were made of 4620 to the Peter Hand Brewing Company—

A. That is right.

Q. 306. And who was the other?

A. William Gerst Brewing Company.

Q. 307. Your factory records show that the center spot was secured by 4620.

A. Yes.

Q. 308. Was there anything on the invoices to those people showing it was 4620?

A. No.

Q. 309. What records have you got showing that 4620 was used on those first shipments?

A. The packing tickets that we keep to correspond with those case numbers.

Q. 310. I show you some papers and ask you to please tell me what they are and what your factory method is in keeping track of the cases of goods that are made and sold?

A. The top two papers are the pink and blue order copies.

The pink copy is the factory, the manufacturing and shipping order covering 100 gross of special decorated crowns which we shipped to the Peter Hand Brewing Company, Chicago, July 3, 1933. We cased 100 gross in one case, No. 148.

The blue copy is that which we habitually keep in the office for track of production. That has a note on it in what looks like Mr. Eisen's handwriting, "4620 run in paper room." The paper room was a separate room we had at the time that we used for making our first runs of aluminum foil coated with 4620 adhesive.

The next two papers—let me say that 100 gross is our order No. C-3079. This order, the pink copy of that order, shows under the heading, "Packing slip No. 3050."

[fol. 323] The next two sheets are the pink and blue copies of our order No. C-3050 covering 27,600 gross of special decorated crowns that we shipped to the Peter Hand Brewing Company at Chicago on June 26, 1933. The order calls for 30,000 gross as the quantity ordered, and we shipped 27,600. There are no marks on that other than our usual manufacturing and shipping marks referring to 4620 or anything else.

The next batch of papers, these white slips with green tickets pasted on them, is our packing list. Every one of these green tickets is written out, or the beginning of it is written out by the operator of the machine that produces the crowns, the assembling machine operator, the date and the operator's number, and usually the carton number from which the cork discs were taken, are put on that ticket, and later the name of the packer who closes up the carton or the case, and the date is put on the ticket and the case is given a number when it is packed, that number corresponding, of course, to the number on the manufacturing or shipping copy of the invoice when the merchandise is shipped out.

Now, case No. 148 on that packing ticket of C-3050 has a notation, I believe; yes, the green ticket for case No. 148 shows a quantity of 100 gross assembled June 22, 1933, by J. B. E. and Schmidt. J. B. E. is Mr. Eisen, and Schmidt is the name of the mechanic who takes care, of the foreman who takes care of the crown assembling machines. That indicates that one of our regular assembling machine operators did not run those crowns through; the machine was run by the mechanic with Mr. Eisen standing by, and it is noted there in Mr. Eisen's handwriting, "Special 4620,"

[fol. 324] and up in the corner it reads, "90 gross special foil 4620, 10 gross regular." The entire package was 100 gross.

Q. 311. Can you separate from that bundle of papers the invoices showing the factory number—

A. The invoice or our shipping ticket?

Q. 312. The shipping ticket also.

A. Yes, sir.

Q. 313. And also the green slip you just testified about?

A. And do you want this blue slip?

Q. 314. What does the blue slip show?

A. That is kept in the office in regard to production. Now, this green ticket, do you want it on the list or shall I tear it off?

Q. 315. Is it just one sheet?

A. It is one of the sheets.

Q. 316. I do not want the whole bundle.

A. All right. It is the last ticket on there (indicating).

Mr. Warland: I offer this in evidence as one exhibit.

(Marked Defendant's Exhibit AAAA in evidence.)

Q. 317. I show you another factory order for the William Gerst Brewing Company and I ask you the same question about that.

A. The first two papers here are the pink and blue copies.

Q. 318. And what is the date of the pink and blue copies?

A. Our order No. C3090 dated July 13, 1933, covering a shipment—

Q. 319. How do you know that had No. 4620 on it?

A. That covers 1493 gross and a number of the case numbers are marked on the pink copy here—the packing slip No. 6656. The next two papers are pink and blue copies and our order No. S6656, which was a stock order calling for the manufacture of 4964 gross of Gerst crowns.

[fol. 325] The next papers are the packing tickets corresponding to that stock order and the crowns shipped on order No. C3090 on July 13 included the cases that were run up on that packing ticket. Now, taking the cases numbered—I think there are four cases on here, yes, the cases numbered 76, 77, 78 and 79,—cartons rather—containing 50 gross each were manufactured by one of our regular as-

sembly machine operators on June 29, 1933, and marked on each of those tickets is S. F. Eisen and to the best of my recollection that means, "Special Foil Eisen,"—that is supplied by him to the operator. Of those four cases numbered 76, 77, 78 and 79, cases numbered 77, 78 and 79 were included in the shipment of July 13, 1933, to Gerst, and that was two cases of 50 gross and one of 43 gross, a total of 143 gross were run with 4620 adhesive and the balance were of our regular manufactured center spot crowns adhered with gutta percha.

Q. 320. Will you separate those as you did with the other exhibit?

A. Yes. I note here on the blue copy there is a note, "Contents of cartons 76, 77, 78 and 79 made with 4620." That was a note made by Mr. Eisen.

Mr. Warland: I offer these papers in evidence as one exhibit.

(Marked Defendant's Exhibit BBBB in evidence.)

Q. 321. Now, when you adopted 4620 as the adhesive did you make any difference in the speed of your machines?

A. No.

Mr. Warland: That is all.

[fol. 326]. Cross-examination.

By Mr. Scull (continued):

X Q. 322. Now, as to these paper spots you have told us about, Mr. Cohn, how does it come about that the defendant took up their manufacture—what induced it?

A. The people asking us to make them for them.

X Q. 323. There was a considerable demand?

A. Yes.

X Q. 324. And had been for some before you began manufacturing them?

A. We had seen them on the market before we put them out. That is what led me to get some of the material for it in 1929.

X Q. 325. Where did you get that material?

A. From Peters Brothers. That is we got the varnished paper from the Irvington Varnish & Insulator Company, who are regular manufacturers of varnished paper and we

sent that paper to the Peters Brothers to have them apply the gutta percha to it.

X Q. 326. When you ordered this paper from them did you tell them you wanted it for center spots?

A. No.

X Q. 327. What did you order?

A. To the best of my recollection it was 90-pound express paper, yellow varnish one side coated.

X Q. 328. Had you seen any such paper used for spots on crowns before you ordered it?

A. Yes.

X Q. 329. And you knew that is what the spots were made of which were then being used on the market?

A. Substantially, yes. I am not sure that I know it was 90-pound paper, but I knew it was that kind of paper.

X Q. 330. You told us something about your production of paper spots I think up to 1932. Am I to understand that [fol. 327] this carload that you shipped to Welch in 1932 were the only paper spots that were shipped in 1932?

A. No, I said we shipped carload quantities. I believe we shipped more than one carload to Welch in 1932, I am not sure.

X Q. 331. Were you selling to others?

A. Yes, I mentioned Pabst, and there were some others.

X Q. 332. And you have been selling continuously since up to the present time?

A. Yes.

X Q. 333. In about those quantities or considerably more?

A. No, not considerably more; about those quantities. Our principal business is with brewers who use aluminum center spots, but people like the Welch Grape Juice Company use the oil paper spots.

X Q. 334. Have you sold any to any of the ginger ale companies?

A. We have sold Canada Dry some crowns. I believe we sold them a couple of carloads in 1932, I am not sure of the dates and years, but we did sell them a couple of carloads. I do not believe we have been successful in getting any more business out of them.

X Q. 335. At page 279 of the record you were telling us on Friday about something which preceded your use of the Millis type, or, rather, the making of the Millis type, White Rock type of center spots, and you said that "the method

we intended to use with that die did not work out very satisfactory."

A. Yes.

X Q. 336. What was that method?

A. I am a little bit hazy on it. Our records do not show, but to the best of my recollection we tried two things. Some of our correspondence with Inecto indicates that the first thing we tried to do was to simply adhere the center spot to [fol. 328] the cork disc by dropping, putting some paraffin, hot paraffin molten, on top of the cork disc, inserting the center spot of the molten paraffin and then putting more paraffin on top of that; in other words, putting the center spot between two layers of paraffin, the idea being that the Inecto people were very nervous, Dr. Evans was very nervous about having anything come in contact with his hydrogen peroxide except materials known to be inert to hydrogen peroxide, and those materials were notably glass, paraffin and tin; I do not mean tin plate, I mean tin. But that did not work. I am not positive that that is the case, but that is, to the best of my recollection today.

X Q. 337. You referred to your correspondence with Inecto. Have you got that all here?

A. I have some of it. Anything that is pertinent, I think.

X Q. 338. I didn't ask you what was pertinent, I wanted to know if you had it all here?

A. I did not bring the entire correspondence with Inecto here.

X Q. 339. You have more than you have introduced here in evidence?

A. Yes, there is some more. Anything that had to do with the center spots I brought down.

Mr. Scull: May I see that, Mr. Warland, please?

The Witness: I think there is a folder there marked Inecto.

X Q. 340. Was this attempt to stick the spot on with paraffin the first time you had ever tried to put spots on crowns?

A. Yes.

X Q. 341. For any purpose in any way?

A. That is right.

[fol. 329] X Q. 342. Did you ever try to hold the spot on by coating the entire surface of the crown, the spot and all, with water glass?

A. No, that is too brittle.

X Q. 343. Did you try to use water glass in any way to hold the spot on?

A. No, I would not try to use water glass for that purpose.

X Q. 344. My understanding is that this attempt to fasten the spot on with paraffin occurred in the latter part of 1924.

A. We received an order from the Inecto people, if I remember right, in August, 1924, and we kept fooling with, or experimenting, I should say, with various methods of getting the center spots to stay on the cork until December, 1924, when we shipped them some caps, of the White Rock or Millis type.

X Q. 345. Coming to this White Rock type, were you operating under any of these patents that have been referred to here showing that?

A. No.

X Q. 346. When did you make the first cut-in of the White Rock type?

A. I believe the record shows December 4, 1924, we shipped to Inecto.

X Q. 347. How much ahead of that had you made them?

A. We shipped some as soon as we got them satisfactory; they were waiting for them.

X Q. 348. I would like to have a rather detailed description of the machine, the way you put in those White Rock crowns; in the first place, what kind of a machine did you use as the base?

A. A Clark-Johnson assembling machine.

X Q. 349. And that is provided with the usual chute and hopper?

A. Yes.

X Q. 350. And on that Clark-Johnson machine that you had how long was that chute?

A. At that time that chute was, I should say, three feet [fol. 330] long, possibly a little longer. Since then we have got shorter chutes that do not take up so much room, but at that time we still had the long chute.

X Q. 351. And then, for my information as to the Clark-Johnson machine, after the shell comes down the chute it enters a rotating disc, is that right?

A. Yes, it rests on top of a rotating dial and there is a circular guide that bounds the periphery of that dial to control the path of the shells, of the crowns.

X Q. 352. On your machines how far did the shell travel from the time that it entered this disc until it passed out into the rack, in degrees now?

A. The disc is approximately 12 inches in diameter, if I remember it right, and it traveled about a half a turn on that disc, which would make about 18 inches of travel, and then it entered the rack.

X Q. 353. Now, next I assume is the cutting of the groove in the cork, is that right?

A. Yes. You are talking about the machine that we had in December, 1924.

X Q. 354. Yes.

A. That is right.

X Q. 355. Now, how was that cutting done?

A. By a rotating knife.

X Q. 356. And was it a knife or a—

A. It was a circular knife.

X Q. 357. How was that driven?

A. You mean made to rotate?

X Q. 358. Yes.

A. It was rotated by means of gears—there is a small train of gears. The driving gear was mounted on a shaft that went through the center of this dial. The dial of course was driven from the main shaft of the machine below, through beveled gears.

[fol. 331] X Q. 359. And that cutter rises and falls?

A. Yes.

X Q. 360. And there were ways by which you could determine the depth of the cut?

A. Yes, but those ways, if you recall, were not good enough because that was one of the troubles with the December, 1924 production.

X Q. 361. And next came the punch which punches out the disc or foil?

A. Right.

X Q. 362. And inserts it in this groove, is that right?

A. That's right.

X Q. 363. Now, how was the end of that punch formed, what was it, it was not flat, I think you told us.

A. Now, do not mix up the punch with the inserting plunger.

X Q. 364. Perhaps I have not understood you then. How many reciprocating members are there?

A. Just one. The inserting plunger is inside of the punch.

X Q. 365. Now, this member that rises and falls above the strip of foil is really a compound member, is that right?

A. Yes.

X Q. 366. Can you make a sketch of it, Mr. Cohn?

A. I think so.

X Q. 367. Will you do so please?

A. Surely (sketching on paper). I think this just about shows it. It is very rough of course. The lower cutting edge with its locating portion centers—locates the crown centrally with respect to the die and assures the centering of the center spot on the cork disc. The punch descends and shears the center spot through the lower member and pushes the center spot down or very close to the cork disc and the inserting plunger inserts it into the annular slot.

[fol. 332] Mr. Scull: I offer this sketch just made by the witness in evidence as a plaintiff's exhibit.

(Marked Plaintiff's Exhibit 38 in evidence.)

X Q. 368. I think you told us that when you went into the making of this White Rock type you decided to keep the exposed surface of the spot the same as you had previously attempted with paraffin.

A. Yes.

X Q. 369. And that necessitated enlarging the cutting punch?

A. That is right.

X Q. 370. Because you had to have additional material to tuck into the slot?

A. You will notice that the diameter of the inserting plunger is approximately the diameter of the center spot in the finished crown. The cutting punch has to be bigger.

X Q. 371. And it was these parts which you referred to in the Nagy bill of November 20th as making a cutting attachment on the tin center die, regrinding tin center die and making new punch, and the new punch is just what you have drawn here on the sketch?

A. That's right. Now, that invoice does not say anything about the inserting plunger. I do not know whether he made it or whether we did.

X Q. 372. Now, on this machine in making these White Rock caps, did the spotted crowns go through the drum at the end of the machine?

A. You will note that some of those invoices show something about paraffin on top of the disc. Now that has nothing to do with center spots per se. I would answer your question this way; if at the same time we were dropping paraffin on top then we would remove the plungers from the drum because we would not want the plungers splashing down on molten paraffin, that is according to the best of my recollection. I think however there was no complication from paraffin, we would leave the plungers there, not that they were needed, which they were not, but they were needed when we assembled the cork discs into the crown and there is no point in taking things off and putting them back for the fun of it.

X Q. 373. You did not divert the crowns?

A. The crowns went through the drum.

X Q. 374. Now, where did you put the wax or paraffin on the surface of the crown and the spot, which I understand was the custom always so far as the Inecto crowns are concerned.

A. No, no, no. Some of the time we would use paraffin and some of the time we did not. Just when we started and when we stopped I don't know, I am not exactly sure here, but to the best of my recollection we started in without it, that is without that paraffin on top of the cork disc in our first actual shipments to Inecto, that is in the first of these White Rock type. That proved unsatisfactory for the reasons that have been described and I believe we enabled the Inecto people to use those crowns by putting them through a separate operation later and dropping some paraffin over the whole thing, I am not certain, but I think we did.

X Q. 375. How would that have enabled them to use these crowns, these White Rock crowns with the spot when the cork was cutting through that way?

A. It would simply put a layer of inert material between [fol. 334] the cork and the contents of the bottle, and if we were fortunate enough on any particular bottle not to have that layer cut through, then it worked all right. Or it may be that they used those crowns up later when they got better bottles, or for all I know, they may not have used them at all, I am not sure. But I know at some stages

of the game we dropped paraffin on top of the center spot and cork disc, and then later we obtained a special alloy of tin-foil that was found to work better with peroxide and be even more inert to the peroxide than the pure tin we had been furnishing, and after that we dropped the use of paraffin which proved to be a nuisance—

X Q. 376. What do you mean by "later," about when?

A. I think sometime in 1925. There were, I remember, a number of conferences about that time to try to improve that.

X Q. 377. Not prior to March?

A. Prior to March, 1925?

X Q. 378. Yes.

A. I do not believe so, but I believe that those invoices that are in evidence will show whether there was paraffin on them or not.

X Q. 379. When you did put this wax on was it done in the same machine in which you did your spotting?

A. I do not know whether it was done at the same time, but it was done on the same machine. We only had one machine for making that one size crown at any time.

X Q. 380. You mean it was put through the machine a second time?

A. It may have been.

X Q. 381. Or passed through a third time, as a matter of fact?

A. It may have been, yes.

X Q. 382. And that wax was dropped on the surface and then spread by some kind of spreader?

A. That is right.

[fol. 335] X Q. 383. Well, my understanding from Dr. Evans' testimony is he wanted a pretty heavy coating of paraffin to protect the spot and the cork from the peroxide?

A. He wanted a complete coating; how thick it was didn't matter much, but it had to be a certain thickness in order to be satisfactory and be sure there were no holes in it. As a matter of fact, the paraffin proved to be a nuisance, because it tended to cause the crowns to stick in the chute of the crowning machine. We abandoned it as soon as we could get a tin-foil that would work better.

X Q. 384. Prior to this Inecto incident of paraffining the spot, had you been supplying crowns to Inecto?

A. Yes.

X Q. 385. They were natural cork and heavy paraffin, were they not?

A. That is right; before that natural cork without a specially heavy paraffin.

X Q. 386. In this letter of February 20, 1924, which has been produced here as part of the correspondence with Inecto, from you to Inecto, there is a statement "referring to the writer's visit today with reference to the specially heavy extra coating of paraffin on your corks, we beg to suggest the use of a refined paraffin of about 120 degrees N B"—

A. I am sorry; who suggested that?

X Q. 387. In this letter—

A. I did not get that one word.

X Q. 388. It says, "We beg to suggest." That indicates, does it not, that as late as February 20th you were using a specially heavy extra coating of paraffin on the natural cork caps?

A. Yes, to the best of my recollection we began to use at that time an extra coating applied to the corks, to the [fol. 336] cork disc after the cork disc was inserted into the shell. Prior to that time we had been treating our cork discs, washing them and treating them before they were inserted in the shell, and the cork discs were coated with paraffin at that time, but that coating of paraffin could not be very heavy, for if it were it was apt to interfere with the adhesion between the cork disc and the metal shell.

X Q. 389. That was just the ordinary amount of wax?

A. That is right. This letter refers to an additional amount which I believe we dropped on the cork, and when that didn't help them much, help them enough, we went to center spotting.

X Q. 390. Yes, but this letter—

A. That is February, 1924.

X Q. 391. Of course, you were making center spots then?

A. No, no. That was 1924, wasn't it?

X Q. 392. You told us that you improved the method of cutting these grooves and making the White Rock type. This improvement occurred, as I recall your testimony, sometime in March, probably, of 1925, is that right?

A. That is right.

X Q. 393. What was the improvement?

A. It was an improvement in the cork scoring knife.

I think we scalloped the knife or did something to make it work better.

X Q. 394. How did that affect the depth of the cut?

A. It enabled us to control it better.

X Q. 395. In the last part of 1924 and during 1925, did you send out samples of your White Rock type of center spot crowns to others than Inecto?

A. I believe not. Now, at some time around there we [fol. 337] solicited the business actively of the White Rock Company, and at the same time that Nagy made that die for us for Inecto, he made another die of the size for a standard crown that was used only for experimental or sample purposes, and around that time we solicited the business of the White Rock Company. As a matter of fact, I think you had something to do with it either then or a year or two later; that is merely my recollection.

X Q. 396. You think what?

A. I think your office had some connection with this in connection with the White Rock Company. I won't be positive about that.

X Q. 397. You mean my firm?

A. I believe so, yes.

X Q. 398. Well, there were other people using center spots besides White Rock at that time, were there not?

A. Yes.

X Q. 399. Did you try to solicit their business?

A. No, no. The White Rock business by itself had volume enough to warrant our getting special machinery for it.

X Q. 400. Weren't there others using spots at that time with considerable volume?

A. There was considerable volume, but we were active chiefly in connection with the brewery trade, and there wasn't considerable volume in connection with the brewery trade with center spots at that time. We did go after the Inecto business. I know that the Kalak people who were right in our building, did not have sufficient business to warrant our installing machines.

X Q. 401. And what kind of spots were they using?

A. They were using tin-foil center spots adhered with gutta percha and at other times I saw the White Rock type down there.

[fol. 338] X Q. 402. The only one concern that you sold any of these adhesive and stick spots to in 1925 was this Inecto Company?

A. That's right.

X Q. 403. And by the way you have put in an exhibit here, marked XXX, which shows your sales beginning with 1928. Now can you give me some idea what your sales of crown caps of all kinds was in let us say the years '24, '25, '26 and '27.

A. I haven't looked that up but I would say they were probably smaller than shown in 1928. After prohibition our crown business suffered very severely and we went into other lines, but I haven't looked it up and I will have to find out.

X Q. 404. Now, Exhibit XXX gives the gross sales of crowns in 1928 as 843,000 gross.

A. Yes.

X Q. 405. And would it be your idea that in the years 1925, '26, and '27 the sales were about that same order?

A. '28 was 843,000 gross?

X Q. 406. Yes.

A. I told you I would have to look it up. My impression is that they were probably less. They did not go down to 10 gross of course or something like that, they were in the hundreds of thousands of gross.

X Q. 407. Several hundred thousands?

A. Yes.

X Q. 408. And out of those crowns of all types what percentage were spot crowns, we will say in 1925?

A. In 1925 the only spot crowns we made were for the Inecto people. Now I guess we had the quantity somewhere.

X Q. 409. You have told us you sold altogether—

A. Over twenty million caps.

X Q. 410. That is down to date?

A. Yes. It would average about two million a year. It was less than and more today.

[fol. 339] X Q. 411. Have you those figures available?

A. In regard to the sale to the Inecto, yes.

X Q. 412. No, I am particularly interested in your total sales of crowns of all kinds in the years 1925, '26 and '27, and those with center spots. In other words I would like to have your Exhibit XXX extended back so as to include the years 1924, '25 and '26.

A. Well, I would have to go to work and tally them up.

We would have to go through our sales books and have them tabulated. It can be done. It will take a little time.

X Q. 413. Why did you start this exhibit in 1928?

A. That is when we started to produce center spots in volume to the brewery trade.

X Q. 414. Will you make up such a list before the completion of the trial and let us have it please?

A. Yes.

X Q. 415. I should like it as soon as possible.

A. I will do my best. It will take a bit of work to go through it.

X Q. 416. Did you ever make and sell any of those White Rock type of center spots with composition cork?

A. No, we did not.

X Q. 417. In other words you agree with Mr. Weisenberg when he says it is necessary to use natural cork with the White Rock type?

A. To the extent that we have not succeeded in insertting that type into composition cork: I would not agree that it is impossible, we have not tried very hard. We have not been called upon to try very hard.

X Q. 418. But you have tried it?

A. Yes, we have tried it.

X Q. 419. Now, there was a letter here which is Exhibit I, [fol. 340] dated January 17, 1925, acknowledging a letter of yours of January 16th. That is your letter of January 16th. Have you that letter here?

A. Is that the Beechnut Foil Company that you are talking about?

X Q. 420. Yes.

A. Yes, that letter is here.

Mr. Scull: May I see that letter and at the same time all the correspondence had with the Beechnut people in this period, in the latter part of December until March?

The Witness: I think it is there.

Mr. Warland: We will produce it.

X Q. 421. Now, turning to these gutta percha spots for the Inecto Company am I correct in understanding that you used the same machine that you had previously been using for the White Rock type of cap for Inecto?

A. After making such alterations in the machine it was necessary for the production of the gutta percha type cap.

X Q. 422. It was the same Clark-Johnson machine?

A. That is right.

X Q. 423. Now, I should like to know with some detail just what changes you made in the machine, starting with it in the condition it was in for making the White Rock type of spot for Inecto. In the first place I think you told us that you put heat on the chute?

A. That's right.

X Q. 424. Now, what was the particular arrangement for the heat?

A. A gas flame.

X Q. 425. Of the Bunsen burner type?

A. Well, you might call it that, it was a multiple Bunsen burner if it was, a pipe with lots of holes in it, the holes being [fol. 341] in a direction perpendicular with the chute so that the flame played over the chute.

X Q. 426. Was it high pressure or low pressure?

A. Low pressure.

X Q. 427. And how long was that?

A. About the length of the chute.

X Q. 428. About three feet long?

A. Well, the pipe was probably less.

X Q. 429. You mean to say that the flame was three feet long?

A. No, the pipe was three feet long. The flame shot out perpendicular of the pipe.

X Q. 430. And over what extent of that chute were the flames playing?

A. Most of the three feet.

X Q. 431. And then of course it had a disc as before which carried the shell or in this case the shell with the cork in it, around into the feed rack?

A. The dial, that is right.

X Q. 432. There was no change in that respect?

A. That's right.

X Q. 433. And then you took off the rotating knife?

A. Right.

X Q. 434. Now, what did you do so far as the punch is concerned?

A. The tin-foil cutting punch?

X Q. 435. Yes.

A. We took out the insert plunger that was in there and substituted another one that was flat.

X Q. 436. No other change?

A. In the cutting punch itself, I believe not, the diameter was left as it was so that we get a somewhat larger center spot.

X Q. 437. What about the die and by die I mean female part of the punching die?

A. That was left the same.

[fol. 342] X Q. 438. Have you any records of any such change?

A. What is that, I don't quite get you.

X Q. 439. Have you any records of any such change?

A. No, we have a record of the fact that the work was done on that machine between August or September of 1924 and March or April of 1925. There is one record covering the various changes. The rest of what I am saying is a matter of my own recollection, refreshed by such records as you have seen.

X Q. 440. My understanding of your testimony is that after the spot was pressed down on the cork the assembled crown then traveled by means of this rack down to the dial or drum.

A. Down to the drum. Are you talking about the White Rock or the gutta percha type of 1925?

X Q. 441. The gutta percha type of 1925.

A. That is right.

X Q. 442. And you were not sure whether or not there was any heat from the gas flame above that as it traveled?

A. That is correct. There is a gas pipe there or there was that was used on the machine when we assembled cork discs into the crown and whether we used it in the foil spotting operation or not I do not recall. If we needed it we used it.

X Q. 443. Now, these spots and the cork on which they were affixed were always waxed I assume, by means of the paraffin?

A. Well, the cork discs before the insertion of the spot were not heavily waxed with paraffin, they were waxed as we normally waxed cork before we inserted them into the crown. We would not apply paraffin to a cork to which we were going to stick a spot with gutta percha. Now whether [fol. 343] paraffin was applied to the cork and the center spot after the center spot was affixed that I don't recall, perhaps the invoice would show.

X Q. 444. Now, I call your attention to this invoice of February 5, 1925, from defendant to Inecto, which is Exhibit EE and which calls for tin-foil—paraffin coated. What do you understand that that language means?

A. Well, that would indicate that paraffin was applied on top of the tin foil after the spot was applied to the crown. That would mean not only to the tin-foil but to the cork disc surrounding it, and this is stuck with gutta percha.

X Q. 445. After you placed the spot in, you put this layer of paraffin over the entire surface of the interior of the tin?

A. That is right, yes; not only the entire surface of the tin, but of the exposed portion of the cork outside of the tin as well.

X Q. 446. Surely, I understand everything inside of the crimped edge of the shell?

A. That is right.

X Q. 447. Now, the same thing is true, is it not, of this invoice dated January 27, 1925, which is Exhibit DD which calls for "Tin foil-paraffin" coated?

A. Yes, I think that is correct.

X Q. 448. So that at least so far as these two invoices are concerned, one of them calling for 84,000 and the other for 41,000, we know that they were coated entirely with wax over the tin-foil and exposed part of the cork?

A. I think that is correct, yes.

X Q. 449. Where was that wax put on those crowns, in that same machine?

A. That would be done in a subsequent operation if it was gutta percha in the same machine. That is, I think it [fol. 344] would, unless we succeeded in running it with wax and putting the wax coating on the crowns, putting the crowns with the wax applied when hot into the drum. We might have done that, but I believe it was probably done in a subsequent operation on the same machine.

X Q. 450. Now, what is the fact as to your procedure today? Do you have a heated plunger immediately following the punch which punches out the spot and places it on the cork?

A. That is right, yes.

X Q. 451. Since 1925 have you done any spotting on crowns where you did not have a heated plunger following the point where the disc is inserted on the cork?

A. I am not sure, but I believe we always used heated plungers. I know there were, we always had heated

plungers on the machines, with the possible exception of that first machine we got from Johnson, that failed to work. Some of the time those plungers were rendered inoperative when we did not need them.

X Q. 452. Under what circumstances?

A. I would say in hot summer weather; most of the time we use them.

X Q. 453. In such cases how far was it from the point where the paper spot was put on the crown to the drum?

A. Six inches.

X Q. 454. That would be about how many caps?

A. Four.

X Q. 455. When you did have the heated plungers—

A. It might be five, something like that.

X Q. 456. When you did have the heated plungers used how close was it to the point where the center spot was put on the cork? May we have that now in terms of number of stations?

A. There was, after the cutting punch—

[fol. 345] X Q. 457. Yes.

A. There is one idle space made necessary for the thickness of the cutting and feeding mechanism, and after that the heated plunger, and after that, on our present machines, a second heated plunger. After that there is an idle space or spaces, two idle spaces, whichever is necessary mechanically for the machine, and then the drum.

X Q. 458. My recollection of your testimony again is that sometime in March of 1925, you abandoned this gutta percha adhesive you had been using and went back to the White Rock type for Inecto, is that right?

A. Right.

X Q. 459. Just what changes did you make there?

A. From the gutta percha type in 1925 to the White Rock type we removed the heating mechanism, gas flame along the chute of the assembly machine. We inserted a rotating cork-cutting knife to cut the slot in the cork in a position before the crown reached the center spot cutting punch. And we removed the inserting plunger that was in the cutting punch and substituted a properly shaped cutting plunger, the same as I showed you on the sketch I drew before, that would press the edges of the center spot into the slot in the cork. If we had used any heating mechanism

between the center spot cutting die and the drum when we were running gutta percha we rendered that inoperative.

X Q. 460. Let us turn to this 1928 incident connected with the Johnson machines. You told us you got a machine on July 17, 1928, from Johnson. To what extent was that machine actually used?

A. As I told you, we made about 100 gross on it. We might have made a few more that we reconditioned later, [fol. 346] but we found that trial shipment to Goetz proved no good, and we did not use that machine for center spot crowns after that.

X Q. 461. So, so far as that particular machine is concerned, that is out, as far as production is concerned?

A. It is out on all center spot crowns, that is right.

X Q. 462. When did you get that second Johnson machine? I think you told us before it was delivered about August 28th.

A. Right.

X Q. 463. Your invoice here to Goetz shows, and my understanding also of Mr. Goetz' story is, that this 100 gross that was shipped him, which gave trouble, was sent August 14, 1928?

A. That is right.

X Q. 464. There is another 100 gross on August 23rd.

A. Yes.

X Q. 465. That gave no trouble?

A. That is right.

X Q. 466. According to his testimony?

A. That is right.

X Q. 467. How were they made?

A. They were made on that same machine that was delivered July 17th, but before they were shipped out they were put through a second operation on a standard Clark-Johnson cork disc assembly machine in which everything was rendered inoperative except the heating mechanism over the crowns and the spring actuated plunger in the drum. In other words, those crowns were run through that assembly machine, the upper surface was heated, the lower surface might have been too, I am not sure, but the tin-foil spot and the gutta percha underneath it was, the aluminum foil and the gutta percha underneath it was heated, and then it was carried underneath the plunger of the drum and [fol. 347] subjected to pressure while the gutta percha cooled.

X Q. 468. The third invoice to Goetz, dated August 31st, shows a shipment of 25,000 gross. How were those made?

A. What is the date of that?

X Q. 469. August 31st.

A. Yes; I do not think all of those were center spots. May I see the invoice? Give me the batch of them. I will find it.

(Papers handed to witness.)

The Witness: November 24th is the earliest one we have here.

X Q. 470. I show you Exhibit QQQ, an invoice dated August 31, 1928, for 3,000 gross of aluminum centers. How were those made?

A. I would say those were made partly on the second machine that we got from Mr. Johnson on August 28th, I think that was the delivery date, that machine once it got going would be good for about 700 gross a day. And the rest of them that weren't produced on that machine, if any, were produced in the manner that I just described, the combination between the one operation on the July 17th machine and the other operation in a standard machine. We did undoubtedly at that time have an accumulation of crowns that we had sent through that July 17th machine, and if we could have salvaged them by that type of operation, we did it, I am sure.

X Q. 471. The 25,000 on there—

A. Those were without center spots.

X Q. 472. Those were ordinary crowns, were they not?

A. Yes, that is right.

[fol. 348] X Q. 473. Did you make any tin spots in 1928?

A. I believe not, I haven't found any record of it.

X Q. 474. What was the pressure behind you to get into production of these spots in 1928?

A. The Goetz people wanted them as soon as they could get them.

X Q. 475. Had you tried to sell spots to anybody, before that to Goetz?

A. Not outside of what I mentioned before, about the White Rock, I believe not.

X Q. 476. The spots were being used in large quantities, were they not in 1928?

A. Yes, Anheuser-Busch was using them.

X Q. 477. How long had Anheuser-Busch been using them?

A. To my knowledge since 1926.

X Q. 478. Anybody else in the brewery business?

A. Yes, there were others using them. I am not sure that I have my own independent recollection of others but the spots were being made. I have seen reference to crowns made by other manufacturers, Bamberger-Kraus as well as Crown Cork & Seal and others, to various customers around that time and before.

X Q. 479. In your description of the Cohn method you constantly use the past tense in describing the operation of the machine.

A. We do that today substantially the same way. I think the questions are referred to when we adopted it. If not, I used it inadvertently.

X Q. 480. First you said this Cohn method is accomplished by putting in a drop of adhesive or an adhesive-treated paper collet. That adhesive-treated paper collet is covered with what kind of an adhesive?

A. It is a mixture of resin and gums.

[fol. 349] X Q. 481. Is it heat-fusible?

A. Yes, it is commonly used.

X Q. 482. What is this drop of adhesive you refer to?

A. That is a solution, I believe it was casein.

X Q. 483. And is that casein heat-fusible?

A. No, that sets upon drying. We used heat to dry it. We would get it to a point where it is almost dry and then insert the cork disc and then let it continue its drying while it is in the drum and while the crown cools, under pressure.

X Q. 484. And under what circumstances did you use this paper collet. What is the reason for using one kind of adhesive at one time and another another time?

A. When the paper backed crown is demanded we use it, otherwise we use the liquid adhesive because it is cheaper.

X Q. 485. You say that the shell is carried past a gas flame which heated the shell and the adhesive inside of it, and that would be true of both the shell and the paper collet?

A. Yes, there is no change made except the drop of adhesive, substituting the drop of adhesive.

X Q. 486. You say then that the shell with the cork disc in it was passed under a heat mechanism which at one stage

s a localized gas flame and at another stage of our manufacture consisted of electrically heated plunger?

A. That is right. Today we use electrically heated plungers. When we first used this method we used the gas flame, that is, played a flame of gas on the exposed surface of the cork disc in just one position of the crown. If I remember rightly at that time there was an electrically heated plunger in addition to that but we did not get enough heat on the cork with the aid of the electrically heated plungers used alone at the time, so we used a gas flame in addition. We removed one plunger and substituted a gas flame. The second plunger we left there. That is by comparison with the previous method of cutting in the center spots in an operation by themselves. X Q. 487. Now, when Johnson supplied you with these center spot machines of his, he had two electrically heated plungers ahead of the cutting plunger?

A. That's right.

X Q. 488. And you disconnected one of those electrically heated plungers and put on a gas flame?

A. That's right, in one position. To make it clear, those machines in addition to having those two electrically heated plungers also had a long stretch of gas flame that was available for use when we use the assembler as a cork disc assembly machine and that was also available for use for pre-heating in a gentle fashion the exposed surface of the cork disc when inserting the center spots. In other words the gas flame was used to supplement the two electrically heated plungers to which you have just referred.

X Q. 489. Next you said the crown was placed under the center spot cutting die. That center spot cutting die as I understand it not only punches out the disc but carries it down and places it on the cork?

A. That's right, it deposits the center spot upon the pre-heated cork disc or a crown that has been centered under the die.

X Q. 490. How much pressure is there on that at that time?

A. Just enough to bring it in contact and hold it there.

[L. 351] X Q. 491. Is there enough to indent the cork at that time?

A. No, if the inserting plunger, where a separate insert-plunger is used and is smaller in diameter than the center spot so that it fits inside of the plunger why that

leaves its mark on the center spot, but I would not say that it indents the cork.

X Q. 492. As a matter of fact, do you use this inserting plunger as well as the cutting punch?

A. On some of the machines at the present time we do and on some machines we do not, we have a solid punch and the punch deposits. Remember that is made for the White Rock type.

X Q. 493. Then next it says that the crown with this disc on it is carried past additional heating plungers.

A. Yes.

X Q. 494. And what do they do?

A. Supply heat.

X Q. 495. Any pressure?

A. No.

X Q. 496. They do not touch—

A. They touch it, there is a spring that holds them down and the spring is just strong enough to hold them in contact to prevent them chattering.

X Q. 497. What are they for, just to supply heat?

A. That's right.

X Q. 498. No pressure?

A. That's right.

X Q. 499. And yet they touch the disc and press it against the cork?

A. Well, I would not say—they touch the disc all right, they touch the center spot.

X Q. 500. Now, at the time of the ultimate downward motion isn't it a fact that you could not run even a strip of steel one-thousandth of an inch between the bottom of that plunger and the cork or disc?

A. Sure, the bottom of the plunger touches the center spot.

[fol. 352] X Q. 501. And is pressing against the cork?

A. I won't answer that question yes because you imply that it exerts a pressure that causes it to dent the cork or adhere the cork and that is not the case. The facts are these; each of these heating plungers that is on the reciprocating head that holds the cutting die, some of them heat the cork before the center spot is inserted and some heat the crown after the center spot is inserted. They are all held in their downward position and prevented from bouncing up by a small spring and we have had one of those springs tested and I think it is a little over a pound that it exerts

in its pressure in its closed, most highly compressed position. Those springs are for the purpose of holding those heat plungers in contact with the center spot. After that the crown goes into a drum underneath plungers that are being pushed down to exert pressure and press the center spot against the cork disc and hold it there and those plungers are actuated by springs which in their compressed position exert a pressure of about $14\frac{3}{4}$ pounds. I believe I said $12\frac{1}{2}$ the other day but I looked that up and it is really $14\frac{3}{4}$.

X Q. 502. Are those plungers which immediately follow the cutting punch ever called smoothing plungers?

A. I do not call them that.

X Q. 503. Well, in your patent No. 1,921,808 there is this sentence, at page 1, beginning at line 97, "Before the adhesive has cooled the closure, with the spot adhering to the gasket 4, is next passed under a smoothing plunger 13, which may be heated when desirable and which covers the entire gasket and presses the entire surface of the spot [fol. 353] into contact with the gasket." Is that a correct description of the machine as you actually use them in your plant?

A. That is about right. I might supplement that to this extent, the inserting plunger of the cutting punch being smaller in diameter than the spot itself, presses or holds the spot flat in the area that is smaller than the diameter of the spot and as a result the edges of the spot have a tendency to curl upwards or bend upward and these heating plungers in addition to their primary function of imparting heat, do tend to press down the edges. Their real function is to supply heat. If we have enough heat we do not use them.

X Q. 504. When you in your patent said that these plungers press the entire surface of the spot under contact with the gasket, aren't you saying that there is pressure exerted?

A. I daresay I am, the two words seem the same.

X Q. 505. You also have, don't you, some Johnson spot-terers in which there is not this combined arrangement of your patent?

A. No, not now, not any more. We bought one of them but that was dismantled.

X Q. 506. And that was the one that was purchased in August of 1928?

A. That's right.

X Q. 507. And that is no longer in existence?

A. That's right.

X Q. 508. By the way the Gutmann Company and the people connected with it always patent their inventions?

A. Not always. Of late years we have become patent conscious.

X Q. 509. Did you file a patent application on the use of this 4620 in any way?

A. No, when we inquired regarding it Mr. Wentworth advised us in his opinion it was not patentable, it was an old adhesive.

[fol. 354] X Q. 510. How did you use this 4620? Did you apply it adhesively to the strip of foil?

A. We coated it on the aluminum foil which we got in rolls of a suitable width. We got them about 22 inches wide, so they fit one of our machines, and we applied it with a coating machine.

X Q. 511. You did that coating yourself?

A. Yes.

X Q. 512. Always have?

A. Yes. After that we slit it into one-inch ribbons.

Redirect examination.

By Mr. Warland:

R. D. Q. 513. Mr. Scull asked you, as I recall his cross-examination, about this glazed varnished paper that you used for making center spots first, and you got it from the Irvington Varnish Company?

A. The glazed paper, the varnished paper that we had coated with gutta percha in 1929 by Peters Brothers, the paper was obtained from the Irvington Varnish & Insulator Company. In 1930, March, when we made our first small shipments commercially of paper center spots we obtained the gutta percha backed varnished paper from the Irvington Varnish & Insulator Company.

R. D. Q. 514. Now, did you use that same kind of varnished paper that you used for the center spots, but without gutta percha, prior to 1929?

A. Oh, yes, yes.

R. D. Q. 515. For what purpose did you use it?

A. Our screw caps, bottle caps, we used it in.

R. D. Q. 516. By screw caps you mean screw caps on bottles like ketchup bottles, mayonnaise bottles?

A. Yes.

R. D. Q. 517. There was no gutta percha on those?

A. That is right.

[fol. 355] R. D. Q. 518. But the paper was substantially similar as you had subsequently coated with gutta percha?

A. That is right.

R. D. Q. 519. For how many years had you been using this glazed varnished paper without gutta percha prior to its adoption by you in 1929 for center spots?

A. Oh, since about 1924, when we started making screw caps.

R. D. Q. 520. You testified in answer to a question by Mr. Scull as to the pressure of these various plungers with springs. I understood you had a test made of them.

A. Yes.

R. D. Q. 521. I show you this paper and ask you if that is the result of the test you had made?

A. Yes, that is right. It shows on the heating plunger spring there is a deflection load of one pound five and sixty-seven hundredths ounces, a little over one and a quarter pounds, and the deflection load on the collecting drum spring is 14 pounds 12 ounces. I think the springs are here if you want them.

Mr. Warland: I offer this paper in evidence.

Mr. Scull: No objection.

(Marked Defendant's Exhibit CCCC in evidence.)

Recross-examination.

By Mr. Scull:

R. X Q. 522. My understanding is what is called the deflection load on this Exhibit CCCC on the springs for the plungers in the drum represents the pressure under which the disc is placed while it is being cooled, is that right?

A. That is right.

[fol. 356] R. X. Q. 523. And similarly, does the deflection load of one and one-quarter pounds on the plunger spring represent the pressure under which the disc is held against the cork by that plunger?

A. That is right.

Redirect examination.

By Mr. Warland:

R. D. Q. 524. Just a minute, about how long is the cap held under that plunger that exerts a pressure of one and a quarter or one and three-quarter pounds?

A. There are on some of our machines four such plungers all told, and on some of them six, and the crown is held under each plunger for about 160 degrees of the revolution of the machine, and the machine turns 200 times a minute. It amounts to about six-tenths of a second, if I remember correctly, that the crown is held under heat.

R. D. Q. 525. When you get into the drum how long is it held there? That is under a pressure of $14\frac{3}{4}$ pounds.

A. It is held between 11 and 12 seconds. There are 38 plungers on the drum, held—I should say the plunger in the drum is held in contact with the crown for 38 positions of the plunger, in other words, while 38 crowns are moving through, so it is 38/200 part of a minute.

WILLIAM M. FRIES, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What business are you in, Mr. Fries?

A. Lithographing business.

[fol. 357] Q. 2. How long have you been in the lithographing business?

A. Approximately two years.

Q. 3. Prior to being in the lithographing business what business were you engaged in?

A. Manufacture of crown caps.

Q. 4. With what company and under what name?

A. Crown Cap Manufacturing Company.

Q. 5. Whereabouts was that company located?

A. 201 Thirty-seventh Street, Brooklyn.

Q. 6. Did you ever do any business with the defendant, Ferdinand Gutmann & Company?

A. I did,

Q. 7. Just what was the nature of the business you did with them?

A. I furnished assembled crowns to them and had them put on a spot center.

Q. 8. What kind of center spots did they put on for you?

A. Tin-foil.

Q. 9. Beg pardon?

A. Tin-foil.

Q. 10. Did they ever put any paper center spots on for you?

A. It is possible; I couldn't recall.

Q. 11. I show you two papers and ask you to tell me what those are.

A. They are for 100 gross each of crowns with paper spot centers.

Q. 12. I show you Exhibit 7 and ask you if that is the type of cap on which Gutmann put a center spot for you?

A. Yes.

Q. 13. Did Gutmann return those crowns to you after the spots were put on?

A. They did.

Q. 14. And did you sell those caps with the paper center spots on in the regular course of business?

A. Yes.

Mr. Warland: I offer the two papers in evidence as one exhibit.

(Marked Defendant's Exhibit DDDD in evidence.)

[fol. 358] Q. 15. I show you a bundle of nine orders on the stationery of Crown Cap Manufacturing Company, the first one dated March 28, 1930, and running as late as October 2, 1930, and two others without any date, and ask you to please tell me what those papers are?

A. The one dated August 6, 1930, calls for 600 gross of crowns to be paper spotted. July 10, 1930, 50 gross of crowns to be paper spotted. July 8, 1930, 50 gross for paper spotting. June 9th, 100 gross for paper spotting. May 7, 1930, 1,000 gross for paper spotting. April 5, 1930, 100 gross for paper spotting. March 28, 1930, 1,065 gross for paper spotting. October 2nd, 200 gross for paper spotting. This one is dated March 3rd, with no year, and calls for 200 gross for paper spotting. This is for 800 gross paper spotting.

Q. 16. No year on that one?

A. No year on that.

Mr. Warland: I offer these papers in evidence as one exhibit.

(Marked Defendant's Exhibit EEEE in evidence.)

Q. 17. Did the Gutmann Company put center spots of foil on crown caps for you?

A. How is that?

Q. 18. I mean you have testified and produced orders for paper spots to be put on caps. Did you ever have Gutmann put metal foil spots on crown caps?

A. I did.

Q. 19. And did you do that during the years from 1930 on?

A. I assume so.

Q. 20. I show you a letter from the Crown Cap Manufacturing Company, dated April 23, 1929, in which you ordered Gutmann to put tin-foil center spots on a thousand [fol. 359] sand gross of decorated composition corks. Did you have that work done on or about that date?

A. Yes, it is my signature to the letter, and it must be that I did.

Mr. Warland: I offer that letter in evidence.

(Marked Defendant's Exhibit FFFF in evidence.)

Q. 21. Did you at a later date put these center spots on yourself?

A. I did.

Q. 22. Do you know approximately what that date was?

A. Well, it must have been shortly after I made the last purchase from the Gutmann Company.

Q. 23. That would be the latter part of '31 or possibly '32?

A. Yes.

Q. 24. Now, what sort of a machine did you get to put these center spots on?

A. It was known as a Johnson spotter.

Q. 25. Afterwards did you have any changes made in that Johnson spotter?

A. No.

Q. 26. Do you know Mr. Nagy?

A. Yes.

Q. 27. Did he ever do any work for you?

A. Yes.

Q. 28. What work did he do?

A. He furnished me with forming dies for forming the crown caps and any special work that I required done.

Q. 29. Did you at any time have a machine in which the empty caps were fed into a hopper and the cork discs secured in the metal shell and the center spot put on the cork disc, all in one machine?

A. I did deliver a regular standard Johnson assembly machine to Nagy for the purposes of having an attachment [fol. 360] added that would spot center at the same time that the cork was assembled in the shell.

Q. 30. And did he deliver such a machine?

A. He did, rather he delivered such an attachment on the machine I sent him.

Q. 31. And that was about when, would you say, approximately?

A. That was early 1933 or late 1932.

Q. 32. And you have been in the plant of the defendant Gutmann Company, haven't you?

A. I have.

Q. 33. And you have seen what we are calling here the Benno Cohn method in which the tin cap and cork lining and center spot are all put on in one machine?

A. Yes, I did.

Q. 34. And it was after that you had Nagy make a machine in which you tried to do the same thing?

A. Yes.

Q. 35. And do you know where that machine is now?

A. I don't.

Q. 36. Why did you leave the crown cap manufacturing business?

A. I sold the Crown Cap Manufacturing Company.

Q. 37. To whom?

A. To the Crown Cork & Seal Company.

Q. 38. That is the plaintiff in this suit?

A. Yes.

Q. 39. Approximately when was that?

A. That was July of 1933.

Q. 40. Now, what became of all your books and records, of the crown cap business at that time?

A. So far as I know they were turned over to the purchaser.

Q. 41. And what became of this machine that you had Nagy put the attachment on in order to put in the cork and the center spot in the metal shell all in one operation? [fol. 361] A. I left that in the plant when I became disconnected, along with the rest of the equipment.

Q. 42. And did you ever sign this license agreement with the Crown Cork & Seal Company which has been referred to here?

A. I did.

Q. 43. Well, am I to understand that you turned over all the machinery that you had in your plant and your books and records relating to the conduct of the Crown Cap Manufacturing Company, to the plaintiff the Crown Cork & Seal Company, is that right?

A. That is right.

Mr. Warland: That is all.

Cross-examination.

By Mr. Scull:

X Q. 44. You said that the sale occurred in July of 1933, of your business, to the plaintiff here?

A. Yes.

X Q. 45. And did you move out personally or did you remain in charge for a time?

A. I remained in charge.

X Q. 46. About how long?

A. Four months.

X Q. 47. And at the end of that time what happened, I mean did you merely walk out, leave personally or was all the machinery carted away or what was done?

A. No, the machinery remained there but all operation ceased.

X Q. 48. Now, during that four months from July of 1933, when the sale was made to the plaintiff, until the end, four months later, was this combination machine about which Mr. Warland has been asking you, operated by you or the Crown Company or by anybody in that plant?

A. No, is was not.

[fol. 362] X Q. 49. You are positive of that, are you?

A. Yes.

X Q. 50. As a matter of fact had you used this combination machine before the sale to the Crown Cork & Seal Company, to any considerable extent?

A. No, I never could get it to where it worked so that it could produce commercially.

X Q. 51. And who were the people who were associated with you in this Crown Cap Corporation and who had any contact with this combination machine, can you name them please?

A. You mean as officers or as mechanics?

X Q. 52. Officers, mechanics or operators.

A. John M. Stark was a mechanic, and he was probably assisted by Mr. John Fries.

X Q. 53. Who is Margaret Mahon?

A. An assembling machine operator.

Redirect examination.

By Mr. Warland:

R. D. Q. 54. You say this combination machine did not work very well. What sort of adhesive were you using to put the crown caps into the metal shell?

A. An albumen adhesive.

R. D. Q. 55. And that required heat to set it, didn't it?

A. It did.

R. D. Q. 56. Now, when you put these completed caps in the rotating drum you heated that drum, didn't you?

A. Yes.

R. D. Q. 57. And that is the reason it would not work, in other words the caps had to be cooled off under pressure and you were trying to apply both cooling and heat under pressure, isn't that right?

A. The difficulty I had was I could not hold the spot center.

R. D. Q. 58. Wasn't it due to the fact that you had heat [fol. 363] and were trying to cool at the same time?

A. I would not say that I fully determined what the difficulty was, otherwise I would have probably corrected it.

R. D. Q. 59. Now, if you had found the difficulty you would have gone on manufacturing in accordance with that method?

A. That was my intention.

AUBREY P. SCUDDER, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What is your business?

A. I am employed by the Village of Rockville Center.

Q. 2. In what capacity?

A. Chemist.

Q. 3. And were you ever employed by a company known as the Kalak Company?

A. Yes.

Q. 4. And what business were they engaged in?

A. The manufacture of carbonated mineral water, and medicinal water.

Q. 5. In that business did they use bottle caps having center spots?

A. Yes.

Q. 6. Just approximately how long were you connected with the Kalak Water Company?

A. From the middle of October, 1916, to December of 1926, about ten years.

Q. 7. What were your duties?

A. Superintendent.

Q. 8. And in your duties as superintendent did you see goods that were purchased and used and sold?

A. Yes, sir.

[fol. 364] Q. 9. Were you shown invoices for the purchase of various materials used in the business of the Kalak Company?

A. They would be sent to me and I would O. K. them and they would be returned.

Q. 10. I show you some invoices on the stationery of the Crown Cork & Seal Company running from June 1st, 1917, to November 30, 1917, and I wish you would look at those and tell me what those are for.

A. Those orders cover orders for crown seals that we used.

Q. 11. Did they have center spots on them?

A. Yes.

Q. 12. Do you know what sort of metal was in the center spots, what it was made of?

A. I understood it was tin-foil or tin; a very small disc.

Q. 13. Like Plaintiff's Exhibit 8 which I show you?

A. Yes, I should say yes.

Mr. Warland: I offer this batch of invoices in evidence as one exhibit.

(Marked Defendant's Exhibit GGGG in evidence.)

Met pursuant to recess at 2 P. M.; present as before.

AUBREY P. SCUDDER, resumed the stand.

Direct examination continued.

By Mr. Warland:

Q. 14. Do you know how this spot of tin-foil was fastened onto the cork?

A. No, except I imagined it was pasted on in some way. [fol. 365] Q. 15. You do not know what the paste or adhesive was, of your own knowledge?

A. No, I couldn't say.

Q. 16. Did the Kalak Company buy center spot crowns from any other manufacturers besides the Crown Cork & Seal Company?

A. A concern named Bond Company.

Q. 17. I show you a paper and ask you to tell me what that is?

A. This is for 600 gross of caps. I imagine that these was pressed in in some way or cut in, whichever they may call it. Whether that was glued besides that, I do not know.

Q. 18. Did you get the caps called for by that invoice and use them?

A. Yes.

Mr. Warland: I offer that in evidence.

(Marked Defendant's Exhibit HHHH in evidence.)

Q. 19. I show you a bundle of invoices from the Crown Cork & Seal Company, made out to Kalak Water Company, running from July 23, 1920, to June 19, 1929, and ask you whether you can state whether or not the Kalak Company

got the crowns mentioned in those invoices, and were they all center spot crowns, and did the Kalak Company use them?

A. Up to 1929?

Q. 20. Yes.

A. I was not with them after 1926.

Q. 21. Pick out those subsequent to 1926 and hand them back to me.

A. Those two have got my initials; those haven't (indicating).

Mr. Warland: I offer in evidence the invoices dated July 23rd and August 31st, 1920, as one exhibit.

(Marked Defendant's Exhibit IIII in evidence.)

[fol. 366] Q. 22. The remainder of these which you handed me have not got your initials on them?

A. No.

Q. 23. So you are not sure whether you got them or not?

A. I am almost certain I did. Oftentimes if they came in they would not even send them to me for an O. K., but they came in.

Q. 24. Did the Kalak Company ever use any bottle caps that did not have a center spot on?

A. In the beginning, the first part of my time, we had just a plain cork until they switched over to them centers.

Q. 25. After that they used the center spots on all of them?

A. Yes.

Cross-examination.

By Mr. Scull:

X Q. 26. How extensive was the business that this Kalak Company did?

A. Well, it is internationally known.

X Q. 27. Well, I want to get an idea of about how many thousand bottles a month were sold, roughly.

A. It is pretty hard for me to guess.

X Q. 28. Was it a thousand a month?

A. A thousand bottles?

X Q. 29. Yes.

A. Oh, yes.

X Q. 30. Well, was it ten thousand a month?

A. I should say yes, they had a very good business.

X Q. 31. Was it more than ten thousand bottles a month?

A. Yes, I should say it was over ten thousand.

X Q. 32. How were these caps put on the bottles, were you familiar with that at all?

A. It was capped on one of the regular Crown Cork & Seal machines.

X Q. 33. You had a regular capping machine?

A. Yes.

[fol. 367] X Q. 34. And that was working pretty consistently at all times, pretty continuously?

A. Yes.

X Q. 35. That is from day to day that capping machine was working?

A. Yes.

X Q. 36. And working throughout the full working day?

A. Yes.

X Q. 37. At what rate was that capping done, have you any idea?

A. Well, in the first part of the business they had the one unit machine, I think it was No. 705, your machine. From that they went into the low pressure machine I think that was 36 bottles a minute.

X Q. 38. 36 a minute?

A. I just forget what the rate was.

X Q. 39. How many of these capping machines did they have?

A. Well, the new machine took care of the capping itself.

X Q. 40. How many of those did you have?

A. Just the one.

X Q. 41. When did that come in, certainly before 1926 wasn't it?

A. Yes, I should say possibly in 1924.

The Court: How long a day did they work?

The Witness: Eight hours.

The Court: Eight hours?

The Witness: Yes, your Honor.

The Court: You did 17,000 a day then, didn't you?

The Witness: Well, there was an hour for lunch.

The Court: Then it was seven hours a day that you worked?

The Witness: 8 to 5 was the hours, with an hour for lunch.

[fol. 368] The Court: Well, that would be eight hours.

The Witness: Yes.

X Q. 42. Do you remember testing any spots or spot crowns provided for the Kalak Company by the Gutmann Company?

A. I think we did, but just exactly when, or the nature of it I cannot recall.

X Q. 43. What is your recollection, was it a long time before you left or about the time you left?

A. Long before that.

X Q. 44. But Gutmann did not supply you with any spot crowns either for test purposes or any other reason in 1925 or 1926, did they?

A. Not that I can recall.

Redirect examination.

By Mr. Warland:

R. D. Q. 45. These crowns you say you got from Ferdinand Gutmann Company, were they spot crowns or were they plain crowns without a spot?

A. We had some of both, natural cork and one with tin centers.

R. D. Q. 46. Now I show you three invoices from the Ferdinand Gutmann Company dated December 16, 1918, July 16, 1919 and February 1, 1919. Please look at those and tell me whether they say anything about tin centers?

A. No, I don't think so.

R. D. Q. 47. If they had had tin centers that would appear on the bill, wouldn't it?

Mr. Scull: I object to that.

Mr. Warland: I withdraw the question.

R. D. Q. 48. All the invoices from the Crown Cork & Seal Company that I have shown you had tin center spots on the invoices, didn't they?

A. Yes.

[fol. 369] R. D. Q. 49. And these have not?

A. These haven't, not that I can see.

Mr. Warland: I offer these invoices in evidence.

(Marked Defendant's Exhibit JJJJ in evidence.)

(Witness excused.)

CHARLES H. RASMUSSEN, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What is your business, Mr. Rasmussen?

A. I am employed by the Ferdinand Gutmann Company.

Q. 2. How long have you been employed by Ferdinand Gutmann Company?

A. Fifteen years, a little more.

Q. 3. Before you were employed by Ferdinand Gutmann & Company what other companies were you with?

A. Just prior?

Q. 4. Yes, prior.

A. I was with the Doehler Die Casting Company.

Q. 5. About what year would that be?

A. 1919.

The Court: What is your position?

The Witness: My position is superintendent.

Q. 6. You mean factory superintendent?

A. Yes.

[fol. 370] Q. 7. Prior to your employment with the Doehler Die Casting Company where were you employed?

A. With the Ajax Cork & Seal Company of Passaic, New Jersey.

Q. 8. When were you there, about?

A. About 1918; I was with them just one year.

Q. 9. Were you ever employed by the Crimp, Cork Stopper Company?

A. Yes.

Q. 10. Where were they?

A. Second Avenue and 12th Street, Brooklyn.

Q. 11. When was that?

A. I was with the Crimp Cork Stopper Company from 1911 until the latter part of 1916.

Q. 12. Did you have anything to do with the manufacture of the first center spot crowns by Gutmann?

A. Yes.

Q. 13. When did they first make any center spot crowns?

A. The latter part of 1924.

Q. 14. Who did you make them for?

A. The Inecto Company.

Q. 15. How was the first lot made that you made for the Inecto Company?

A. The first lot of center spot crowns we tried to make for the Inecto Company were of the cut-in variety.

Q. 16. That is what has been referred to here as the White Rock or Millis type?

A. The White Rock or Millis type crowns, yes.

Q. 17. Approximately how many of those did you make for the Inecto Company in 1924?

A. There was a shipment of approximately 100,000 went to them.

Q. 18. Then did you make any different kind of crown for them, or center spot, for the Inecto Company?

A. Yes, there was—

Q. 19. What other kind did you make?

A. We made some crowns for the Inecto Company of [fol. 371] the B type crowns, and we made about a three months' supply for them with gutta percha.

Q. 20. You mean that the center spot was secured by gutta percha?

A. Gutta percha.

Q. 21. How was the gutta percha put on the center spot?

A. The gutta percha and the tin-foil was mounted together, supplied to us by the Beechnut Foil Company.

Q. 22. Where did you get the gutta percha from?

A. That was something that was bought, I believe it was from the Bishop Gutta Percha Company, but I did not have anything to do with the purchase of that. Mr. Cohn bought that.

Q. 23. You have nothing to do with the purchase of material?

A. Not that particular type of material.

Q. 24. Approximately how many of these center spot crowns with the center spots secured by gutta percha did you make for the Inecto Company?

A. They used about 100,000 a month, and there was a three months' supply, something more than 300,000, there is usually a slight over-run.

Q. 25. As I understand you, the tin-foil was first put on the gutta percha, and then the foil with the gutta percha coating was cut in strips?

A. We received it cut in strips and rolled.

Q. 26. How did you put the cap on? Did you feed it through a machine?

A. Yes.

Q. 27. What sort of a machine did you use to do that?

A. It was a Clark-Johnson type machine, the same as the one we use to assemble the crowns with.

Q. 28. How about the die for the cutting of this center spot, where did you get that from?

A. That was ordered and delivered by Mr. Nagy.

[fol. 372] Q. 29. These invoices from Nagy that have been introduced in evidence here were for the center spot die, is that right?

A. Yes.

Q. 30. You say you shipped gutta percha coated center spots to the Inecto Company for about three months; then what kind of caps did you ship to them after that?

A. Then we reverted back to the original type or Millis type or White Rock type.

Q. 31. You mean with a slot in the cork?

A. With a slot in the cork and the coil cut and inserted into that slot and held securely.

Q. 32. Prior to the making of the gutta percha caps for the Inecto Company had you had any trouble in trying to make these Millis type caps?

A. Yes.

Q. 33. What was the trouble?

A. We could not get the center spot to remain securely.

Q. 34. What caused that?

A. There was an error in our idea of how to make it.

Q. 35. While you were shipping them the gutta percha caps did you experiment or did you do any further work in trying to perfect this method of inserting the cap?

A. Yes, I did.

Q. 36. Did you succeed in inserting the cap after that?

A. Yes.

Q. 37. When did you next, so far as you can recall, ship to the Inecto people caps with a center spot secured like the White Rock type?

A. I believe April of 1925.

Q. 38. Has the Gutmann Company been shipping to the Inecto Company since April of 1925—

A. Yes.

Q. 39. Just a minute, caps, made like the Millis type.

A. Yes.

Q. 40. Approximately how many a year since 1925 have [fol. 373] you sold and shipped to them?

A. Now their requirements are a little more, it is about two and a half million a year that they get now.

Q. 41. What was it around 1925 or 1926?

A. It was less than half of that. Our orders would verify that.

Q. 42. Now these caps that you shipped to the Inecto Company, both gutta percha and tin-foil, are they composition cork or natural cork?

A. Natural cork.

Q. 43. Did you have anything to do with the machine that made these first caps for the Inecto?

A. Yes.

Q. 44. Were any changes made in the Clark-Johnson assembling machine?

A. There were alterations made in the machine to provide a means for accomplishing what we wanted to accomplish.

Q. 45. And were those alterations made under your direction and supervision?

A. Yes.

Q. 46. And just what alterations did you make?

A. You mean after the machines—after we have assembled the crowns completely and they are ready to put on spots, do you want to know what alterations are made then?

Q. 47. What do you do in order to put center spots on the cork disc?

A. In the paper position of the machine we take off the paper punch and in its place we put in a foil cutting punch which is of a self-contained type. Inside that cutting punch there is a compound forming punch.

Q. 48. Now what about the heating of these caps, was the cork heated at all?

A. Not in the Millis type.

[fol. 374] Q. 49. How about your gutta percha type, were the corks heated there?

A. Yes.

Q. 50. How were they heated?

A. With the aid of a gas flame, a long gas flame to be put under the chute of the crown hopper leading from the hopper to the dial.

Q. 51. How did the gas come out of that pipe to get a flame, did it come out in one flame or were there a number of openings?

A. No, there was a series of flames.

Q. 52. Now, do you know anything about the manufacture of gutta percha caps in 1928 for the Goetz Brewing Company?

A. Yes, we got a machine from the Johnson Machine Works at that time.

Q. 53. Is that the machine referred to in the invoice here dated July 17, 1928?

A. I don't know. May I see it?

Q. 54. I show you Defendant's Exhibit S, which is dated July 17th, 1928, an invoice from the Johnson Machine Works, do you remember getting any machine around or about that date from Johnson?

A. Yes.

Q. 55. Tell us about that machine, did it or did it not have a hopper?

A. It had a hopper.

Q. 56. And did it or did it not have a drum?

A. It had no drum.

Q. 57. Did you make any center spot caps with gutta percha securing the center spot on that machine?

A. Yes.

Q. 58. And were those satisfactory?

A. Not entirely.

Q. 59. And was that the first shipment that you made to the Goetz Company?

A. Yes.

Q. 60. What did you do after you found those were not satisfactory?

A. We got a report from the Goetz Company claiming that [fol. 375] the spots were coming off and we took the crowns that had been made on this machine and we put them through a standard Clark-Johnson machine, pre-heating the entire mass and putting it in the drum and cooling it

in the drum under pressure and then shipped the crowns and they seemed to be satisfactory.

Q. 61. What happened to that machine, did you buy another one like it?

A. There was an order for two more of these with Mr. Johnson at the time and I personally cancelled that order.

Q. 62. I show you an invoice dated August 28th, 1928, Defendant's Exhibit P, for one tin-foil machine from Johnson, did you get that machine around that date?

A. Yes.

Q. 63. And did that machine have a collecting drum on it?

A. Yes.

Q. 64. And did you get other machines subsequently from Johnson with collecting drums on it?

A. Yes.

Q. 65. Did you have any serious trouble after you got the Johnson machine with the collecting drum, about the spots falling off?

A. No.

Q. 66. There has been testimony given here and invoices produced by the Goetz Brewing Company showing a very large number of crowns shipped from 1928 up to date by the Ferdinand Gutmann Company. Were those crowns made under your supervision?

A. They were.

Q. 67. Do you know whether they were actually made, sold and delivered to the Goetz Company on or about the dates mentioned in those invoices?

A. Yes.

Q. 68. Now, in any of the machines used by the Ferdinand Gutmann Company for cutting the center spots was [fol. 376] your cutting punch ever heated?

A. No.

Q. 69. Always cold?

A. Always cold.

Q. 70. Now, there has been a patent introduced here in evidence issued to Benno Cohn. Are you familiar with that patent?

A. Yes.

Q. 71. When did the Gutmann Company first make center spot crowns according to the method shown by that patent?

A. I believe it was in 1932.

Q. 72. Just how does the method in that patent work?

A. Why, it differs to the extent that the job is completed in a single operation, whereas previously it had been accomplished in two operations.

Q. 73. Do I understand that in this Benno Cohn method you take the tin cap and put in the cork lining and the center spot all in one machine?

A. Exactly.

Q. 74. Previously you had required one machine to put the cork lining in, and then the caps had to be run through another machine to put the spot on, is that right?

A. Yes.

Q. 75. How about the drum in the machine of this Benno Cohn method? Is the drum cool or hot?

A. We artificially cool that drum.

Q. 76. How do you cool it?

A. With an air jet.

Q. 77. What about the other plungers in the machine? Are they cool or hot?

A. We have heated plungers on the machine; they are naturally hot.

Q. 78. Have you figured out about the length of time that a center spot is held under one of these heated plungers?

A. Well, that varies, on some of our machines we have more than on others.

[fol. 377] Q. 79. What would the average be, about?

A. Oh, probably five to six-tenths of a second. We did have a check on that not very long ago; I believe Mr. Cohn has a record of that date. I haven't it available.

Q. 80. What is the production of the machines that the Gutmann Company use now? How many caps do they make a minute, approximately?

A. About 200 a minute.

Q. 81. That 200 a minute includes the entire operation of putting the cork disc in and the center spot on top of that and securing the center spot to the cork disc?

A. Yes.

Q. 82. And that is how many gross a day, approximately?

A. About 700 gross.

Q. 83. On how long a day are you figuring, an eight-hour day?

A. Eight and two-third hours.

Q. 84. I understood you to say you had figured out the time of contact and the amount of pressure on these various operations.

A. Yes.

Q. 85. I show you a letter written by Ferdinand Gutmann to me referring to that. Will you please look at that and see if it refreshes your recollection?

A. Yes.

Q. 86. I notice you say, "Thus, a summary of contact with heated plungers is as follows:

"Against the exposed surface of the cork disc —one plunger	0.067 sec.
"Four plungers each 0.133 seconds, Total	0.532 sec.
<hr/> Total	0.599 sec.

"Or approximately six-tenths of one second.

[fol. 378] "Contact between hot plunger and exposed surface of center spot:

"Two plunger-, each 0.133 seconds, Total	0.266 sec.
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"Or approximately $\frac{1}{4}$ of a second."

Then you say: "After the above, the assembled crown is cooled in the collecting drum, under a pressure of 14 lbs. 12 oz. for 38 strokes of the machine, or 11.400 sec."

Are those figures correct according to the test you made at that time?

A. Yes.

Q. 87. Now you know about this adhesive 4,620 which was used by the Gutmann Company in some of its caps?

A. Yes.

Q. 88. Do you know when that was first used by the Gutmann Company?

A. That was early in 1933.

Q. 89. What time in 1933?

A. It was the early part of the year, before Summer had gotten in. The exact date I do not hardly think I could remember offhand.

Q. 90. Did you keep any records of these things at all as to dates or did you leave that to somebody else?

A. Those things are largely passed into our factory production records and while I checked them they are passed into the office and kept there.

Q. 91. You do not keep any independent track of them yourself?

A. No.

Q. 92. What did you do first about using this 4,620, at first. Did you run it experimentally or commercially or how did you begin the operation?

A. Naturally we would run small experimental lots at first.

[fol. 379] Q. 93. When was that, early in 1933?

A. It might have been previously. We were actually in operation with 4,620 in the Summer of 1933 I believe.

Q. 94. Did you use this 4,620 on glazed paper spot caps?

A. We have never used it successfully.

Q. 95. It does not work as well as it does on tin-foil?

A. No.

Q. 96. About what proportion would you say of paper spots are made to metal foil spots by the Gutmann Company?

A. Offhand the bulk of our production is metal spot, probably something less than 10 per cent. might be paper spots.

Q. 97. Now, do you recall the visit of plaintiff's counsel and Mr. Fusting to the defendant's plant in 1933?

A. Yes.

Q. 98. And did you see them there on that day?

A. Yes.

Q. 99. Were you running a machine there on that day?

A. Yes, we showed them a machine in operation, of the Benno Cohn type running on No. 4,620.

Q. 100. Were strips of material and samples of caps given to them at that time?

A. I did not give them to them but I understand Mr. Cohn did.

Q. 101. I show you a crown and I ask you if you remember whether or not that is the type that was being run in August of 1933 when Mr. Fusting and Mr. Darby came there?

A. I can tell you if I should be allowed to pull the foil spot off.

Q. 102. Pull it off.

A. Yes, it is.

Q. 103. What is that, 4,620?

A. It is 4,620.

Q. 104. Was that a commercial order that you were making at that time?

A. Yes.

[fol. 380] Q. 105. You were making it for the Rubsam & Horrman Brewing Company in Staten Island?

A. Yes, sir.

Mr. Warland: I offer that cap just examined by the witness in evidence.

(Marked Defendant's Exhibit KKKK in evidence.)

Cross-examination.

By Mr. Scull:

X Q. 106. On these machines that you are using at the present time, which you say is the Cohn or combined machine, you do use heating plungers after the spot is cut and placed on the crowns, don't you?

A. Yes.

X Q. 107. And that as I understand is not the next but the next to one station away from the point where the spot is deposited, is that right?

A. Yes, on some of our machines it might be more, it might be the third station.

X Q. 108. You say it might be the third station?

A. Yes.

X Q. 109. It is either the second or third?

A. Either the second or third.

X Q. 110. How many seconds is it from the time the spot is deposited on the heated cork before it is pressed by that heated plunger?

A. It would be two revolutions of the machine if it is in the second station or three if it is in the third position.

X Q. 111. And it is going at 200 a minute?

A. 200 a minute, yes.

X Q. 112. Has the cork cooled off very much from the station where the disc is deposited on it until the heated plunger comes down on the disc?

[fol. 381] A. Not materially, I suppose there is some cooling takes place.

X Q. 113. And how many of these heated plungers do you use after the disc is deposited?

A. On some of our machines we have two and on others three.

X Q. 114. Did you ever put on spots without using heated plungers?

A. We have used or tried to use gas jets but we find that we can get better control with heated plungers, more successful.

X Q. 115. Gas jets apply no pressure at all, do they?

A. No.

X Q. 116. So what you have found is it is desirable to have some pressure from these plungers as well as heat from them?

A. It is not entirely necessary, it is an advantage.

X Q. 117. It is such a necessity you never do without them?

A. We do not, no.

X Q. 118. In the cutting punch as it is used today on your machines, do you use a single punch or do you use a compound punch?

A. We use both.

X Q. 119. What proportion of the machines are one and what the other?

A. Just about an even proportion, half one way and half the other.

X Q. 120. Where you have the compound punch is either part of the compound punch carried down positively?

A. Yes—

X Q. 121. Or are they both spring-actuated downward?

A. The punch itself is positively operated by an independent cam separate from the cutting mechanism.

X Q. 122. In other words, the thing which carries the spot after it has been cut down, onto the cork, is positively actuated downward?

A. Yes.

[fol. 382] X Q. 123. And you can regulate that, I assume, as to the height to which it will go down?

A. Yes.

X Q. 124. And at the time it is all the way down is the cork held tightly under that plunger?

A. Yes.

X Q. 125. Where you have the single cutting punch is that actuated positively?

A. Yes.

X Q. 126. And that similarly, I suppose, carries the spot directly down against the cork disc?

A. Against the cork disc, yes.

X Q. 127. And presses it against it?

A. Deposits it there.

X Q. 128. Under considerable pressure, I take it?

A. Well, it is under pressure, yes, sir.

X Q. 129. When you abandoned the gutta percha in 1925 and reverted to the Millis or White Rock type, what change did you have to make in the machine or did you make in the machine?

A. When we abandoned—

X Q. 130. The gutta percha in 1925 and went to the Millis type, the type you are using today, just what changes did you make in the machine?

A. There were no material changes made outside of taking off this here gas equipment that we had, increasing the size of our punch, installing a scoring knife and revolving that scoring knife.

X Q. 131. You did increase the size of the punch?

A. Yes.

X Q. 132. That was because you wanted to have additional material that you could tuck down into the cork and still leave the spot the same diameter that it had been before, is that right?

A. I may be wrong in my statement; I believe that was done previously, and we made the gutta percha spot slightly larger than it should be. I believe that change was made previously.

[fol. 383] X Q. 133. What change did you make after you had abandoned this gutta percha and went to this Millis type?

A. The chief change which we made was in the scoring knife; that is what made it possible for us to accomplish that job successfully. We got that scoring under control so we could be sure it positively scored and it did not score too deep.

X Q. 134. What I am trying to get at is what changes did you make in the machine, let us assume you had it set up to put on the spot with the gutta percha, as you said,—

A. Yes.

X Q. 135. I want to know what change you made in that in order to make it make the Millis type of spot.

A. Well, we inserted another forming punch inside the cutting punch that would cut that disc after it was cut, and then we took off the gas equipment, and then the changes I have mentioned before in the scoring knife. Those were the most important things.

X Q. 136. Who looked after that change, who did it?

A. I did it myself, most of it.

X Q. 137. You did it yourself?

A. Most of it, with the aid of mechanics I had in charge.

X Q. 138. You had a number of mechanics who were there and knew about this change at that time?

A. I wouldn't say they all knew about it.

X Q. 139. Well, there were a number of mechanics who did know about it?

A. There was one that was working on the machine at that time taking care of our standard crown production; naturally he paid some attention to that work also.

X Q. 140. There must have been somebody who made the internal plunger.

A. Yes.

X Q. 141. Which, as I understand, has a cupped face?

A. Yes, cupped end.

[fol. 384] X Q. 142. You did not take the old flat-faced plunger and simply cut a recess in that?

A. No.

X Q. 143. You made a new one?

A. We made a new one.

X Q. 144. Who did that?

A. I guess one of the men in the shop: usually under those conditions I would make a sketch of what I would want and give it to one of the men to make up.

X Q. 145. Now, going back to the beginning of this gutta percha episode, my understanding is you were making and having trouble with the Millis type of spot, having trouble in the sense that the customer was complaining because the thing was being cut too deep, and then you got this gutta percha coated foil from Beechnut and you made these changes in the machine. How long after you got that.

gutta percha foil was it before you were producing successfully these gutta percha spot crowns, as you say?

A. Offhand, of course, I couldn't hardly say; I think our office records would perhaps definitely show the dates when we shipped the first ones.

X Q. 146. Am I to understand you just had this foil come in, that you took the machine and stuck this foil in it and put on the belt and away it went and it began to produce successfully these spotted crowns?

A. No, we had some little adjustments to make.

X Q. 147. Probably took you half a day?

A. Probably took more.

X Q. 148. How much more?

A. About one day probably.

X Q. 149. What is your recollection about the way you put the paraffin on these Inecto crowns in 1925?

A. Just what do you mean?

X Q. 150. These Inecto crowns were covered with paraffin [fol. 385] over the entire surface of the cork, including the foil?

A. Yes. My recollection of it is that it was done in a separate operation after the foil had been applied. We had a dropper installed on the machine that as it would contact the cap with the foil spot in it, would permit a drop of paraffin to drop on the foil spot, and the next division would spread it, and we carried it along and out at the end of the machine and we took the plungers of the drum off and just left the caps to ride around the open drum for the paraffin to harden before being discharged on conveyor belts.

X Q. 151. And are you very positive that is the way you did it?

A. I feel so.

X Q. 152. I ask you if you are very positive about it, are you?

A. Yes.

X Q. 153. You do not think there is any possibility it could have been done right on the same machine on which you were doing the spotting?

A. That is the same machine it was a subsequent operation. We only had one machine to do anything with that size cap it is a small size cap.

X Q. 154. Did you ever have any trouble about that waxing operation?

A. Yes it was a nasty process and unsatisfactory to Inecto.

X Q. 155. Why was that?

A. It is so hard to control the drop.

X Q. 156. You mean you were getting so much wax on the disc?

A. Yes, in order to be sure that there was a thorough covering all over the result was that you applied too much. It caused trouble in their capping machine and made a rather unclean package of it.

[fol. 386] Redirect examination.

By Mr. Warland:

R. D. Q. 157. Mr. Scull was asking you something about this gas flame. Where was that gas flame, was it on the cork before the center spot was cut or after the center spot was cut?

A. Which particular operation are you asking about?

R. D. Q. 158. You said in one step of the operation you had a gas flame.

A. Do you mean Inecto.

R. D. Q. 159. Take Inecto with the gutta percha.

A. That was prior.

R. D. Q. 160. Have you ever had a gas flame put on the cork disc after the spot has been cut?

A. No.

R. D. Q. 161. When you used gutta percha for Inecto there was no scoring knife of course on the punch then?

A. No.

R. D. Q. 162. Just a plain punch?

A. Yes, a single punch that cut the foil disc and deposited it on the cork.

R. D. Q. 163. Now Mr. Scull asked you about the name of the man that made changes. Would that man if he made a change, know what that change was for?

Mr. Scull: I object to that.

Mr. Warland: I withdraw the question.

R. D. Q. 164: Would that man know?

A. I should think so.

R. D. Q. 165. As I understand you you cannot get a satisfactory commercial result on the Johnson machine until you had the collecting drum put on is that right?

A. You are talking now about 1928?

[fol. 387] R. D. Q. 166. 1928.

A. The Standard Crown. We had to have them under pressure in a collecting drum in order to get a satisfactory product.

R. D. Q. 167. And these machines that came from Johnson in August of 1928 had a collecting drum on them?

A. Yes.

R. D. Q. 168. All except the first one?

A. Yes.

Recross-examination.

By Mr. Scull:

R. X Q. 169. Did I understand you to say in this gutta percha job of 1925 that you have been telling us about you had a single punch there or was it a compound punch?

A. It was a punch with an inner punch operated independently of the outer one.

R. X Q. 170. The outer punch being the cutter and the inner being the one that deposited the spot on the crown?

A. That is right.

JAY BERNARD EISEN, called as a witness on behalf of the defendant having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. Where are you employed, Mr. Eisen?

A. Ferdinand Gutmann & Company.

Q. 2. And what are your duties?

A. At the present moment?

Q. 3. Yes.

A. At the present moment I am in charge of research and development and doing cost work.

[fol. 388] Q. 4. When did you first go to work for the Gutmann Company?

A. In June of 1925.

Q. 5. What were your duties when you first went there?

A. At that time I was doing work on costs, calculating new jobs and the cost of jobs going through and keeping records of production.

Q. 5. Do you know whether the Gutmann Company at the time that you went there and since has been selling center spot crowns in which the spot is secured in a manner shown in the White Rock or Millis type?

A. Yes, they were making them at that time.

Q. 7. When you first went there?

A. When I first went there and they are still making them.

Q. 8. And that is for whom?

A. For the Inecto Company. That is the scored cork with the center spot tin-foil put in.

Q. 9. Do you know approximately how many a year the Gutmann Company is making for the Inecto?

A. At that time I should judge that we made about one million and a half a year and there has been an increase and I think it is quite actually over two million right now.

Q. 10. Now do you know anything about the making of center spots for the Goetz Brewing Company?

A. Yes.

Q. 11. What did you have to do with that?

A. Well, I kept the records of production.

Q. 12. Did you see the caps being made?

A. Yes.

Q. 13. And do you know when they were made?

A. Yes.

Q. 14. When was the first shipment made to Goetz that you know of?

A. Of center spot crowns do you mean?

[fol. 389] Q. 15. Yes.

A. After the first half of 1928.

Q. 16. How were those center spots secured?

A. By gutta percha.

Q. 17. How was the gutta percha fastened to the cap and to the foil when you first began?

A. At first we used a ribbon of gutta percha and a ribbon of foil and fed the two simultaneously, one above the other.

Q. 18. As I understand you the cutting punch came down and cut these two strips and as it cut it pressed them together on to the cap is that correct?

A. That is correct.

Q. 19. And about how long did you keep up that method?

A. Less than a year.

Q. 20. And about how long did you keep up that method?

A. A little less than a year.

Q. 21. And what method did you employ?

A. Then we had the gutta percha calendered on to the aluminum foil and we used one strip consisting of the two materials together.

Q. 22. You mean—

A. The aluminum and the gutta percha adhered together that is calendered on.

Q. 23. Do you know anything about the trouble that Gutmann had with the first shipment that went to the Goetz Brewery?

A. Yes.

Q. 24. What can you tell us about that?

A. There was a lot of correspondence on it as I remember it. On the first hundred gross that we shipped there they were rejected, as they claimed the spots fell off. Then we ~~got to~~ work in our plant and we ran some more through the same machine that we had for putting the spots on—that is with the second hundred gross or approximately that, we ran them through the second time and then we run them through a regular assembling machine so that we [fol. 390] could get the benefit of the pressure in the drum of the assembling machine that we had available then.

Q. 25. I show you Defendant's Exhibit S which is an invoice from the Johnson Works dated July 17, 1928, for one tin-foil machine, do you know anything about that machine, the purchase and use of it?

A. Yes, I remember seeing the machine come in.

Q. 26. And when that machine came in did it have a collecting drum on it?

A. No, it did not.

Q. 27. And was it on that machine that the first crowns were made, which was sold to the Goetz Brewing Company, which developed trouble?

A. That's right.

Q. 28. And you cured that?

A. Yes.

Q. 29. How?

A. By running through another batch of samples through the same machine which was the only foil spot machine that we had in the house outside of Inecto and then taking

those crowns and passing them through our regular assembling machine, with all its parts taken off except the collecting drum, where the cap would get the benefit of the pressure in the collecting drum.

Q. 30. I show you an invoice from the Johnson Machine Works to Ferdinand Gutmann dated Aug. 31, 1928, calling for "One tin-foil machine, standard drum." What can you tell us about that?

A. That is the first machine that we were able to make spot crowns that were satisfactory.

Q. 31. And did that machine have a collecting drum?

A. Yes.

Q. 32. As I understand these invoices, other machines were bought from Johnson?

A. That is right.

[fol. 391] Q. 33. And did these subsequent machines have a collecting drum?

A. That is right.

Q. 34. And did you have anything to do with the figuring the cost of production on these caps?

A. Yes, I had the record, the figures.

Q. 36. You have a record of when you first figured the cost of aluminum-foil center spot discs secured with gutta percha?

A. That was in June of 1928, June and July, I made cost calculations on that subject.

Q. 37. Did you, during 1928, have charge of the records of production of center spots?

A. That is so.

Q. 38. You kept that work up for how long?

A. Until March, 1930; at that time we were developing the use of "Filmasel," and most of our time was taken up with the development of that subject.

Q. 39. "Filmasel" had nothing to do with these center spots at all?

A. Absolutely not.

Q. 40. Do you know about what the speed of production of machines that Gutmann has been running and is running, is?

A. Yes.

Q. 41. What is it a minute?

A. About 200 per minute.

Q. 42. That is how many gross a day?

A. Approximately 700.

Q. 43. Certain invoices have been produced here showing the sale of gutta percha and metal-foil to the Gutmann Company. Do you know about the purchase of those materials, or did you see those invoices? Have you anything to do with that?

A. From whom?

Q. 44. From, I think some from Peters Brothers and some from Bishop Gutta Percha Company.

A. Yes, we purchased ribbon from the Bishop Gutta [fol. 392] Percha Company, one-inch ribbon, and we purchased, we had the gutta percha calendered onto the aluminum by the Peters Brothers Rubber Company.

Q. 45. Do you know anything about the making of the first glazed center spot crowns by Gutmann & Company, when that was done?

A. I do not know exactly, but it was in 1930, I believe.

Q. 46. That was the first shipment?

A. I couldn't say offhand.

Q. 47. Have you got any records showing when you first figured the cost of paper spots?

A. I have, yes.

Q. 48. Can you produce those records? I show you Defendant's Exhibit UUU, an invoice from Peters Brothers, dated April 10, 1929, for five yards brown paper coated with tissue. Does that refresh your recollection as to when you first figured the cost of paper?

A. Yes, of course.

Q. 49. It was about that time?

A. Yes.

Q. 50. When Gutmann Company first made center spots with metal-foil or any other material, how was that put on, I mean was it put on in the same machine in which the cap was made or in a separate machine?

A. Are you speaking of the regular crowns or Inecto size?

Q. 51. Regular crowns.

A. Well, we have machines that—at the present time we have machines that are used for doing both, that is, we can assemble both an ordinary crown in there or the combination of an ordinary crown with a spot.

Q. 52. When was the method first used of putting the cork discs in the shell and a center spot on the cork disc, both operations in one machine, when was that done?

A. About March, 1932.

[fol. 393] Q. 53. Prior to that, when you wanted to put a center spot on, the cap was assembled in one machine, is that right?

A. That is right.

Q. 54. And then put through a second machine or spotting machine to put the spot on?

A. That is right.

Q. 55. Since March, 1932, you have adopted the method of doing both operations in one machine?

A. That is correct.

Q. 56. When you spoke a few moments ago of a speed of 200 a minute, that means both operations, putting the corks in the shell and the spots on the corks, is that right?

A. That is right.

Q. 57. Did you have anything to do with the 4,620 adhesive?

A. I think I did, yes.

Q. 58. Did you make the first experiments on that?

A. Yes, I did.

Q. 59. What did you get the 4620 for originally?

A. In May, 1932, the salesman for the duPont Cellophane Company—and they were selling us cellophane at the time—called to see me during the ordinary course of business. During our conversation I asked him whether or not he had an adhesive that would have no odor that could be used in connection with what we term "Filmaseal." He told me to write to Parlin, New Jersey, to a certain gentleman there, and ask him about 4620, which they call a thermoplastic cement, which could be used in such a way that no odor would develop.

I received samples a short time after that and tried it out for use in "Filmaseal" and found that I couldn't do it, that it was not practical.

Q. 60. I show you a letter marked Defendant's Exhibit WWW, dated May 12, 1932, from duPont Company; is that [fol. 394] the letter you got from them?

A. That is right.

Q. 61. After you got the sample mentioned in that letter what did you do about using that material to adhere center spots to cork discs?

A. We did not start to use it in connection with crowns until late in 1932 when, due to the legalization of 3.2 beer at that time, the beer business began to look a little more interesting to us, so we bent our efforts in the laboratory

to see whether or not this material could be used as a substitute for gutta percha, because also of the fact that gutta percha gave universal difficulties if the gutta percha crowns laid around at any place for a great length of time.

Q. 62. About when did you make your first center spot caps using 4620 as an adhesive?

A. Either January or February of 1932; we have a laboratory record of it.

Q. 63. You mean 1933?

A. 1933, pardon me.

Q. 64. What does that record show?

A. The record shows that we made, that we coated onto a piece of aluminum one inch wide this 4620, using a brush for the coating process, and then adhered it, cutting the spot out in the laboratory with a suitable die that we had available for it.

Q. 65. By hand?

A. With a hand die, yes, and centering the spot onto the crown, or to the few crowns we had in there, and sticking them on by means of heat first and pressure afterwards.

Q. 66. When did you first try that out on a machine in an experimental way?

A. Probably February or March of that year.

Q. 67. What was the result of your experiments with the machine? Did you find it satisfactory or unsatisfactory?

A. We found that we could take the 4620 on the aluminum [fol. 395] and substituting it for the use of gutta percha on the aluminum and put it right into our machines as they were then situated and keep right on running them, turning out crowns.

Q. 68. Did you do anything about having this tested for pasteurization qualities?

A. Oh, yes, we went through a number of tests; of course, this was such a radical departure at that time from what was then on the market, that we had to make thorough tests of every phase of it that we knew about.

Q. 69. Who did you send the bottles with the caps secured with center spots using 4620 adhesive, who did you send them to to be pasteurized?

A. We sent them to the Schwartz laboratories.

Q. 70. Where is that?

A. In New York City.

Q. 71. Have you got a record of the date of that?

A. Yes; we have a report from the laboratories indicating it.

Q. 72. I show you a paper from the Schwartz Laboratories, and ask you if that refreshes your recollection?

A. That is the test.

Mr. Warland: I offer that report in evidence if the Court please.

(Marked Defendant's Exhibit LLLL in evidence.)

Q. 73. Now do you know about the commercial production of center spot caps using the 4620 as an adhesive?

A. Yes, I produced the first ones that went through, with the aid of a mechanic outside.

Q. 74. I show you Defendant's Exhibit BBBB, an order [fol. 396] from the Goetz Brewing Company. Can you tell me whether that 4620 is the adhesive and if so what means have you of telling whether it is 4,620 or not?

A. Well, it is my writing on this blue copy of the order.

Q. 75. Your writing was put right there?

A. Exactly. The packing slips were marked by somebody in the factory which indicates—they are marked "S. F. Eisen," indicating—

Q. 76. Is that your writing?

A. No, this is by a man in the factory, indicating that these particular cartons so identified are special foil made up by myself and consisting of 4620 coated on to aluminum foil.

Q. 77. Do you know of your own knowledge that 4,620 was shipped in accordance with that factory order?

A. Yes.

Q. 78. I show you another factory order Defendant's Exhibit AAAA. What can you tell me about that?

A. That case consisted of a hundred gross of crowns, 90 of which consisted of center spots of aluminum adhered to the cork by means of 4620 and 10 gross of our regular production. There is a notation on here by myself, made at the time, June 22, 1933, that one of the mechanics and myself ran this through. I was personally present at the machine all during the time that these were run.

Q. 79. And do you know whether the goods described in that factory order were actually shipped?

A. Yes, this is the shipping memorandum, this pink slip (indicating).

Q. 80. And you know that these goods were shipped to the Peter Hand Brewing Company?

A. They were shipped to the Peter Hand Brewing Company.

[fol. 397] Q. 81. On the date mentioned therein?

A. Right.

Q. 82. You said a few minutes ago that that letter from the duPont Company refreshed your recollection as to the first sample that you got from them. Do you remember when you first purchased any from them?

A. I think it was early in 1933.

Q. 83. I show you a bill from the duPont Company to Ferdinand Gutmann & Company dated 4/4/33, and I ask you if that is the date when you first got the first gallon of that material?

A. Yes, that is the date.

Q. 84. Is this the can that that material came in (handing to witness)?

A. Yes, sir, it is.

Mr. Warland: I offer this bill from the duPont Company in evidence.

(Marked Defendant's Exhibit MMMM in evidence.)

Mr. Warland: I also offer in evidence this original can.

(Marked Defendant's Exhibit NNNN in evidence.)

Q. 85. You spoke of a test that you had made for this 4620 and referred to a pasteurization test. Did you make any other test on crowns secured with this adhesive?

A. Yes, we compared the aging of the 4620 crowns with gutta percha crowns.

Q. 86. How did that comparison show up?

A. In all cases the 4620 crowns stood up much better, meaning thereby that the adhesion of the spot to the crown was much better than the adhesion of the gutta percha.

Q. 87. I have shown you a report from the Schwartz [fol. 398] Laboratories on pasteurization. Did you make any pasteurization test yourself before sending that to Schwartz?

A. Yes.

Q. 88. Do you know how long before that was?

A. I should say about March of 1933.

Q. 89. Did you run any tumbling test?

A. Yes.

Q. 90. And how did those show up?

A. We tumbled the 4620 crowns in a rotary tumbler and the paint on the crowns was entirely obliterated while the spots still adhered themselves to the cork indicating that the crowns had been tumbled terrifically, at least very much more than they would ever get in production.

Q. 91. I call your attention to the patent marking on this Defendant's Exhibit NNNN, can of the duPont substance; did you notice that at the time you purchased the can?

A. Yes, I did. I might add here that some five gallon cans purchased directly afterwards still had the marking.

Cross-examination.

By Mr. Scull:

X Q. 92. I think you told us that you had taken up the matter of cost of production of aluminum spots with gutta percha in 1928.

A. That is right.

X Q. 93. Now, after you got down to a manufacturing basis, we will say at the end of 1928, what was your cost of production?

A. I can't say offhand.

X Q. 94. Have you got the figures here?

A. I think so.

X Q. 95. Will you look them up and let me know?

A. It indicates a cost of seven and a quarter cents per gross for the spotting only.

[fol. 399] X Q. 96. Yes, for the spotting only is what?

A. That the cost is seven and a quarter cents per gross.

X Q. 97. Seven and a quarter cents per gross for the spotting only and that was aluminum foil with gutta percha?

A. That is right.

X Q. 98. That is when the spotting was being done with the Johnson machine?

A. We had no other.

X Q. 99. The answer is "Yes" then.

A. Yes.

JESSE GUTMANN, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. What is your business, Mr. Gutmann?

A. I am employed by Ferdinand Gutmann & Company.

Q. 2. In what capacity?

A. Vice-president and sales manager.

Q. 3. How long have you been with that company?

A. Since 1914.

Q. 4. What are your duties with the firm, principally?

A. Selling our products and helping our men to sell them, and also endeavoring to create new ones and indicating the need for improvements in old ones.

Q. 5. When did the defendant Ferdinand Gutmann & Company first make center spots of any kind that you know of?

A. In December, 1924.

Q. 6. Are those the center spot crowns that have been [fol. 400] testified to as having been made and sold to the Inecto Company?

A. Yes.

Q. 7. Did you have anything to do with the manufacture of them?

A. With the sale of them; I sold them.

Q. 8. But you had nothing to do with the manufacturing details?

A. Not in the manufacture of them, not as to the details. I saw them going through, but I didn't have anything to do with the production.

Q. 9. Did you negotiate the sales to Inecto Company?

A. I did.

Q. 10. How about the sales to the Goetz Brewing Company? Did you have anything to do with obtaining the orders for those or not?

A. Not at that time; my father did.

Q. 11. When Gutmann began the manufacture of center spot crowns in November or December, 1924, had you, prior to that time, seen center spot crowns?

A. Yes.

Q. 12. Did you know of them on the market?

A. Yes, indeed.

Q. 13. Did you see any of those center spot crowns made by other manufacturers?

A. I did.

Q. 14. Did you see any made by the Kalak Company?

A. Not made by them, used by them.

Q. 15. When was that?

A. That was in 1919, I fix the date; at about that time we sold the unspotted natural cork crowns. They were located right in our building in Bush Terminal below us, not immediately below, but several floors below, and I saw the crowns which they were using there, which were tin-foil center spot crowns on natural cork, made by the Crown Cork & Seal Company of Baltimore.

Q. 16. Do you know how the center spot was fastened [fol. 401] on this crown that you saw in 1919?

A. Yes, by gutta percha.

Q. 17. How do you know it was gutta percha?

— Well, I peeled off the spot and examined them, and looking backward I know that it is the same material that we used subsequently to make the Inecto crowns.

Q. 18. Do you know anything about the use of the method shown by the Benno Cohn patent, when that was first adopted by the defendant?

A. Yes.

Q. 19. When was that?

A. Early in 1932.

Q. 20. Do you know about this use of the 4620 as an adhesive by the defendant?

A. I do.

Q. 21. When was that first adopted?

A. Well, it was commercially adopted I would say somewhere around June of 1933, but we ran crowns prior to that time experimentally.

Q. 22. How long prior to that time?

A. It would be my guess that we ran some hand samples the end of 1932.

Q. 23. Did you see the first experimental run on a machine with 4620?

A. Yes.

Q. 24. When was that?

A. Very early in 1933.

Q. 25. Now do you recall any representative of the plaintiff company calling at the defendant's factory?

A. Yes, I was present when Mr. Fusting and Mr. Nagle the vice-president and treasurer called.

Q. 26. When was that?

A. They called several times, I think the first visit was some time in April of 1933.

Q. 27. Were you present at that interview had in August of 1933?

A. When they called at our plant to see the machine?

Q. 28. Yes.

A. No, I was not in the city at that time.

[fol. 402] Q. 29. Did you or anybody connected with the Gutmann Company subsequently have any discussion with the plaintiff's company?

A. Yes, we had several interviews. They called at our plant several times, these two same gentlemen, and by invitation my father and I called at the New York office of the plaintiff and that I would say was early in 1934. We were discussing the possibility of avoiding litigation but we could not agree.

Q. 30. At any of these interviews had with the officers of the plaintiff, at which you were present, was Mr. McManus of the plaintiff company there?

A. At the interview in their New York office he was there with Mr. Nagle and Mr. Fusting.

Q. 31. When was that would you say?

A. My guess would be around February of 1934.

Q. 32. Was anything said about the use of the method covered by the Benno Cohn patent?

A. They had seen—Mr. McManus had not, but Mr. Fusting had seen us practice the method and I believe—I am not absolutely certain about this—but Mr. McManus made some statement that he had done that a long time ago.

Q. 33. The defendant company does not confine itself exclusively to center spot caps, does it?

A. No, indeed.

Q. 34. What other product do they manufacture?

A. Unspotted crowns, pharmaceutical and wide mouth screw caps, lithographed drawn tin boxes and we make some specialties, milk and water bottle caps and numerous other closure specialties.

Q. 35. What would you say is the proportion of the

business devoted to center spot crowns as compared with the total business?

A. Roughly about one-third.

[fol. 403] Q. 36. And of the center spots sold, what proportion are metal foil and what proportion are glazed paper?

A. It varies from year to year, but about five to ten per cent paper and the balance metal foil.

Mr. Warland: That is all.

Cross-examination.

By Mr. Scull:

X Q. 37. Prior to the Inecto incident of the latter part of 1924 and the first part of 1925 had you been selling them crown caps that they had been using?

A. Yes, sir.

X Q. 38. And what were they?

A. Natural cork. They were natural cork with a paper collet backing the natural cork.

X Q. 39. And they have continued to use that paper collet as I understand it down to the present day?

A. That is correct.

X Q. 40. That natural cork was coated with paraffin?

A. I would not call it coated, I would call it paraffined. It was not coated on, it underwent the usual process of a paraffin bath. A heated centrifugal machine that is used in the industry for that purpose.

X Q. 41. There was no more than there was on the ordinary cork disc or unspotted crown?

A. A trifle heavier coating than normally, but there wasn't a wad on there.

X Q. 42. Well, how did it come about that you began trying to put spots on those crowns?

A. When we first started—

X Q. 43. I just want you to tell me what occurred between you personally and somebody connected with Inecto.

A. Dr. Evans who had not been with the Inecto Company when I first started to sell them the crowns—

[fol. 404] X Q. 44. When was that?

A. Roughly about 1921 or 1922, Dr. Evans was a technical man and they did not have a real technical man with them prior to that time. While we had made a very big

improvement in their bottling, by using the natural cork crown as compared with the tapered cork that they used prior, still Dr. Evans, when he joined the firm, was not satisfied and thought that the thing could be improved. In other words peroxide decomposes quite readily when it contacts with a foreign material and the cork dust set up this action and resulted in decomposition and he wanted to keep the peroxide stable as long as possible. We discussed various ways of accomplishing it. It was just one of those bottling problems put up to us from time to time and I took it over to the plant and we discussed it there together and I having recalled the use of center spot crowns by the Kalak Company downstairs, I went down there again and I got some samples of those gutta percha adhered tinfoil discs and also some of the White Rock cut-in crowns—these were the regular large size crowns whereas the Inecto was a smaller size and I submitted them to Dr. Evans and he thought that he would prefer the cut-in type and so that is what we first made for them. Does that answer your question or do you want me to continue?

X Q. 45. How did it come about that somebody in your plant first tried to stick the spot on with paraffin?

A. Well, the original thought was to use something entirely inert, and paraffin is inert and so is pure block tinfoil with respect to peroxide. So we attempted to use paraffin to bind the spot to the cork originally, but that was not practical, at least, we didn't find it so. So we then tried [fol. 405] the cut-in or Millis or White Rock type.

X Q. 46. Was that Kalak use the only spot crowns you knew of in 1924?

A. No, no, the White Rock; I knew of considerable use prior to that, and I knew of the Kalak use back in 1919.

X Q. 47. As a matter of fact, during those years there had been a considerable number of spot crowns used, had there not, not only of the White Rock, but of the cemented type?

A. Certainly; they must have been. The only point is we were chiefly in contact with the brewers, and not with the mineral water people who used it. At that time the center spot was chiefly used for mineral waters to prevent the alkaline reaction with the cork.

FERDINAND GUTMANN, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Mr. Warland: If the Court please, before examining this witness I would like to offer in evidence the original interrogatories to the plaintiff offered by the defendant, and plaintiff's answers to same.

The Court: All right.

(Deemed marked Defendant's Exhibit OOOO.)

Direct examination.

By Mr. Warland:

Q. 1. What business are you in, Mr. Gutmann?

A. Manufacturer of bottle caps, corks and bottle supplies.

[fol. 406] Q. 2. How long have you been in that business?

A. For myself?

Q. 3. Yourself.

A. Since 1898.

Q. 4. What name did you do business under in 1898?

A. Ferdinand Gutmann, at 64 Broad Street, New York.

The Court: Are you an officer of the defendant?

The Witness: I am president.

Q. 5. Is the present-day defendant, Ferdinand Gutmann & Company, is that a successor of your business that you carried on?

A. It is; I incorporated the company in 1902; the company was incorporated under the laws of the State of New York.

Q. 6. And have you been president of the company—

A. Ever since.

Q. 7. Ever since that time?

A. I have.

Q. 8. What articles does Ferdinand Gutmann Company make, running back say since about 1920, what have you made principally?

A. Up to 1920, manufactured crowns and imported corks and cork material.

Q. 9. I understand that you make metal boxes and screw caps and things of that kind. How long have you been making those?

A. Since 1924.

Q. 10. What proportion of your business would you say was devoted to center spots as compared with the entire business done by the defendant?

A. During what year?

Q. 11. Well, say from 1924 up to date.

A. It was never larger in 1924, 1925 and 1926 than about 20 per cent of the business.

[fol. 407] Q. 12. You mean the center spots amounted to about 20 per cent. of the whole business?

A. Up to 1926, yes.

Q. 13. From 1926 on how does it compare?

A. From 1928 to 1933, about 40 per cent.

Q. 14. Now, of these center spots which are in litigation here, which type do you sell the most of, the metal-foil or paper spots?

A. Mostly metal-foil.

Q. 15. About what percentage of the center spots that you sell are metal-foil spots, would you say?

A. Between 90 and 95 per cent.

Q. 16. I show you a copy of a letter dated October 10, 1930, written by Ferdinand Gutmann & Company to the Crown Cork & Seal Company. Did you send that letter?

A. I did.

Q. 17. Look at the letter from the Crown Cork & Seal Company and tell me if that is the reply that you got to that letter?

A. It is.

Q. 18. Why did you send that letter which I showed you a copy of, dated October 10th, to the Crown Cork & Seal Company?

A. During my trip in the latter part of September and early October, 1930, it came to my notice that several customers and members of the Brewers Association of the Middle West had been advised—

Mr. Scull: I object to that, pure hearsay.

The Court: Yes, that is pure hearsay.

The Court: He cannot tell us what they told him. He might say that because of some information he received, he wrote the letter.

Q. 19. Just why did you write that letter, had there been any representations—

[fol. 408] Mr. Scull: I object.

The Court: I have already ruled and you should conform to it. He cannot tell us what anybody told him. If he wants to say that he wrote it because of information received, all right, but not what he received.

Q. 22. Did you get information from anybody that caused you to write that letter.

A. I did.

Mr. Warland: I offer the letter dated October 13th, from the plaintiff to the defendant and the letter dated October 10th from the defendant to the plaintiff, and the defendant's reply of October 14th, in evidence as one exhibit.

(Marked Defendant's Exhibit PPPP in evidence.)

Q. 21. Now, at the time you got this letter or at any time after that or before that, prior to the notification of the alleged infringement, did you get any notice from the Crown Cork & Seal Company to the effect that you were infringing any of the patents?

A. I did not.

Q. 22. What was the first time that you were accused of infringing any patents of the Crown Cork & Seal Company?

A. 1934.

Q. 23. Were you present at conferences between some of the plaintiff's officers and the defendant's officers in the years 1933 or 1934?

A. I was.

Q. 24. Were you at the defendant's factory in 1933 when Mr. Fusting and Mr. Darby called?

A. I was.

Q. 25. Did you hear Mr. Darby say anything about the [fol. 409] method shown and described in the Cohn patent which you were carrying out at that time?

A. I escorted Mr. Fusting and Mr. Darby through the factory and showed them, with the assistance of Mr. Benno Cohn and Mr. Rasmussen, the operation of our method. The method which I had explained to Mr. Fusting and Mr. Nagle at their visit several months prior to that and they asked us to sign a license and I explained that we were perfectly willing to show them the machine and our reason for not wishing to sign the license, that we had our own method and we were not involved in this question at all.

I heard Mr. Darby ask Mr. Fusting, after they had examined the machine, and I believe Mr. Wentworth was in the factory with us, standing at the machine and explaining it to Mr. Darby; I heard Mr. Darby ask Mr. Fusting whether he had ever seen that method applied before or anything like it and Mr. Fusting, in my hearing, said that he had not.

Q. 26. Did you hear anything said about any offer to buy the Benno Cohn patent from you at that time?

A. Yes; on the way from the factory into the office I heard Mr. Darby ask whether the machine, or the idea of the patent was for sale and I know that Mr. Cohn said we had not given any thought to that subject and Mr. Darby asked whether he would take \$5,000 and Mr. Cohn said no. Mr. Darby asked whether he would take \$10,000 and Mr. Cohn said no. Then Mr. Darby said, "Well, if the gentleman is asking a million dollars we are not a bit interested."

Q. 27. At the time that they came in, in August of 1933, do you know whether a machine of the Benno Cohn method [fol. 410] was being run on a commercial order?

A. It was.

Q. 28. And do you know the type of center spotting material that was being used on that machine?

A. I know it was a new type.

Q. 29. Do you know anything about the adoption of this 4620 as an adhesive?

A. I heard of it but I am not sufficiently technical to differentiate.

Q. 30. Well, testimony has been given here by some of the officers and employees of your company as to sales of center spot crowns to the Inecto Company and to the Goetz Brewing Company. Do you know anything about those sales?

A. I do.

Q. 31. And do you know the sales were made at the dates set forth in the invoices?

A. Approximately the dates that were testified to.

Q. 32. As I understand it, you had nothing to do with the actual production or detail method of production?

A. No.

Q. 33. That is all up to whom?

A. To my associate, the treasurer of the company, who takes charge, Mr. Cohn, and Mr. Eisen who takes care of the chemical laboratory and research work, and Mr. Busmussen.

Q. 34. Didn't you have anything to do with negotiating the sales of center spot crowns to the Goetz Brewing Company?

A. I did.

Q. 35. Did you know of the use of center spot crowns made by other manufacturers prior to 1924 when the defendant first made the Inecto caps?

A. I knew of several in the mineral water line that had been using center spot crowns in this country as well as in Europe, yes, sir.

Q. 36. After you began to sell the center spot crowns to [fol. 411] Inecto in 1924 and 1925, and after 1928, when you began to sell center spot crowns in large quantities to the Goetz Brewing Company, did you know of the manufacture and sale by other manufacturers besides the plaintiff and the defendant in this suit?

A. I was shown quite a number of competitive crowns.

Q. 37. Made by whom?

A. Made by Bamberger & Kraus, Hutchison Sons, Williamsburg Stopper Company, Crown Cork & Seal Company, Mundette & Son, I believe the Western Stopper Company of San Francisco, too.

The Witness: May I ask one question of the Court? At the time I wrote this letter I had taken a conditional order at St. Joseph, Missouri, from the Goetz Brewing Company provided I could show that we were not infringing on anybody's rights. And I asked, I said that I would very promptly write the Crown Cork & Seal Company, and on receipt of that reply to my letter I sent the letter to the Goetz Brewing Company.

Cross-examination.

By Mr. Scull:

X Q. 38. Who was the man you say you sent the copy of this letter to?

A. I sent a copy of that letter to two people.

X Q. 39. Who are they?

A. One was Mr. Goetz of the Goetz Brewing Company?

X Q. 40. To whom you had been supplying spot crowns since 1928?

A. I did.

X Q. 41. Yes.

A. And the other was to the so-called research and technical [fol. 412] nical adviser of many of the breweries in the Middle West, Mr. E. A. Siebel of the Siebel Laboratories.

X Q. 42. And they accepted this letter signed by Mr. Vincent, dated October 13, 1930, as satisfactory?

A. They did.

X Q. 43. When you made this first sale of spot crowns to Goetz in 1928, my understanding of the previous testimony is you had been having some trouble with your natural cork crowns with him, is that right?

A. Yes.

X Q. 47. Such trouble was not an unusual thing in the brewery business, was it, at that time, yes or no?

A. It was unusual.

X Q. 48. It was unusual?

A. Yes.

X Q. 49. As soon as this trouble developed in Goetz, who was it suggested the spot, you or somebody else?

A. I was shown in the Goetz Brewing Company crowns that Anheuser-Busch had from natural cork turned into spot crowns.

X Q. 50. And Goetz invited you to do the same thing?

A. I said that I could do the same thing, yes, sir.

X Q. 51. Goetz wanted you to do the same thing?

A. He did.

X Q. 52. And you took this Anheuser-Busch crown, brought it back to Brooklyn, I suppose, and told them to go ahead and make a crown like that?

A. We started our experiments at that time, but I may say I had been asked two years before that to make them.

X Q. 53. Two years before?

A. Yes, 1926.

X Q. 54. And you did not do it?

A. I was not prepared to furnish them in quantity and neither would I make a new article without giving it sufficient experimental work and knowing that I could keep a supply [fol. 413] such as this particular customer, Anheuser-Busch, wanted.

X Q. 55. It was Anheuser-Busch?

A. Yes.

X Q. 56. They have a very large output?

A. Not during that time as much as pre-prohibition. You

are talking of 1926. That was in the prohibition period where beer was not the same thing as before 1920.

X Q. 57. Weren't they making near-beer?

A. Yes, but not in the proportion that was anywhere near as important.

X Q. 58. How many thousand gross do you suppose Anheuser-Busch was using of crown caps in 1926?

A. I can tell you better about what they were using before, because my factory furnished the natural cork that Anheuser-Busch was using.

X Q. 59. Up to what year?

A. Between 1904 and 1906 they were experimenting with crowns and we were then still shipping from Spain and Germany our natural cork, one and one-half inch and one and one-quarter inch:

X Q. 60. Those are straight cork—

A. For the inside of the bottle.

X Q. 61. But that does not tell me what I want to know. What is your idea of the number of crowns that Anheuser-Busch was using in 1926, give us a rough idea.

A. Hardly 20 per cent of what they were using during pre-prohibition times.

X Q. 62. What were they using, was it 100,000 gross a year, would you say?

A. They used in pre-prohibition, two million gross a year.

X Q. 63. And in 1926?

A. I don't think they used more than a half a million.

[fol. 414] X Q. 64. More than one-half a million gross?

A. I don't know.

X Q. 65. What is the greatest number of center spot crowns that you have ever made; according to this list which has been put in evidence here as Defendant's Exhibit XXX, the highest number of center spots which you have made was in 1933 when there was 847,000 gross.

A. That is right.

X Q. 66. But up to that time you were doing a center spot business that did not exceed 393,000 gross a year and that was in 1931?

A. That is correct.

X Q. 67. And you thought you were doing a rather respectable business in 1931, didn't you?

A. No, we did not.

X Q. 68. You would not have been interested in having another half million gross added to it?

A. Oh, yes, that would have been very nice, had we been able to.

X Q. 69. You had the ability to make them?

A. When?

X Q. 70. At any time after 1925.

A. No, I refused to go in the center spot business until we ourselves had sufficient experience with beers. Beer is a different article than mineral water, you know.

X Q. 71. How did you get that sufficient information and experience with beer?

A. We experimented and had others experimenting for us.

X Q. 72. In 1926?

A. 1927 and 1928, when it became apparent that some of the big brewers were interested in using center spot crowns.

X Q. 73. In 1928 you got this order from Goetz and you went out and got a machine from Johnson to make it?

A. That is right.

[fol. 415] X Q. 74. And you went to him because he was a manufacturer of this kind of machinery?

A. Johnson had been selling me machines since 1914.

X Q. 75. Did you inquire of him whether he had a center spot machine?

A. No, I left that to the gentleman who had charge of that.

(Recess until Wednesday, November 13th, 1935, at 10:30 a. m.)

Brooklyn, N. Y., November 13, 1935.

Met pursuant to recess at 10:30 a. m.; present as before.

STIPULATION AS TO CERTAIN EVIDENCE

It is Stipulated by and between counsel for the respective parties hereto that the bill to Inecto by Ferdinand Gutmann & Company, dated May 13, 1925, reading as follows: "For experimental work for insertion of tin centers in B caps, with gutta percha, slotting cork and so forth," is a bill duly rendered and further that the attached memorandum dated May 9, 1925, is a memorandum from Mr. Ferdinand Gutmann to Mr. L. A. Gutmann, as of said date.

Mr. Darby: I now offer the bill in evidence as a plaintiff's exhibit.

(Marked Plaintiff's Exhibit 39 in evidence.)

Mr. Darby: I also offer the memorandum in evidence.

(Marked Plaintiff's Exhibit 40 in evidence.)

[fol. 416] It is further Stipulated by and between counsel for the respective parties hereto that if a representative of the duPont Company were called he would testify as follows:

"Q. Did duPont offer 4620 cement to other bottle cap makers besides Gutmann?

"A. Yes, we also offered this cement to the Crown Cork & Seal Company.

"Q. If so, when?

"A. This was done orally by a salesman contacting Crown Cork & Seal Company in either December, 1931, or January, 1932.

"Q. When did duPont first sell it to the Crown Cork & Seal Company?

"A. One quart of 4620 was sent to the Crown Cork & Seal Company in January of 1932. In the time available I have not been able to ascertain whether this was sold or given. By way of clarifying the picture we might also state that this was released by our research department to our sales department on February 18, 1932, and the sales department made certain preliminary contacts in this connection including the contact with Gutmann which led to Gutmann's letter of May 6, 1932, to our Mr. Parker. Both before and after the February 18th date we had been in contact with Crown Cork & Seal Company as an outgrowth of our having previously sold them other products such as our X-1-29. The sales department released this cement for general sale on April 30th, 1932. As you will see, this preceded our first contact with Gutmann. Our records also show that we sent Gutmann one-half a pint of 4620 cement on May 12, 1932, without charge."

[fol. 417] SAMUEL COHN, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct-examination.

By Mr. Warland:

Q. 1. What is your business, Mr. Cohn?

A. I am treasurer of Ferdinand Gutmann & Company.

Q. 2. When was that company organized?

A. 1902.

Q. 3. Have you been treasurer ever since then?

A. Since its organization.

Q. 4. What kind of business does the Ferdinand Gutmann Company do?

A. We were in the cork business and general bottlers' and brewers' supply, and later we went into the crown business.

Q. 5. Do you make any other goods besides crown caps?

A. We do now, yes, we make screw caps, we make some shallow boxes, tin boxes, and other special small stampings.

Q. 6. What would you say was the proportion of the center spot crown cap business to the bulk of the business of Ferdinand Gutmann & Company?

A. The center spot crown in relation to our crown business or—

Q. 7. In relation to your whole business?

A. Oh, roughly, I should say it is one-third at the present time, during the past few years.

Q. 8. Of these center spot crowns that you sell, which do you sell most of, metal center spot or glazed paper center spot?

A. The metal center spot.

Q. 9. About what proportion is the metal spots to the entire output of crowns and center spots?

[fol. 418] A. The entire output of crowns or the entire output of center spots?

Q. 10. The entire output of center spots?

A. I should say between 90 and 95 per cent.

Q. 11. Are metal spots?

A. Are metal spots.

Q. 12. Do you know how long the defendant Gutmann has manufactured crown caps with center spots?

A. Yes.

Q. 13. When did they first begin?

A. Well, it was late, the end of 1924 or early 1925.

Q. 14. Were those the caps made for the Inecto Company about which testimony has been given here?

A. They were, yes, sir.

Q. 15. Did you have anything to do with the actual manufacture, or was it simply made to your knowledge?

A. They were made with my knowledge and I approved of the expenditures involved.

Q. 16. Do you know about these sales that have been testified to that were made to the Goëtz Brewery?

A. Yes, I do; that, however, was later.

Q. 17. That was sales of 1928?

A. 1928 onward.

Q. 18. When did you first learn about center spots for crowns?

A. Oh, I should say the first I paid any attention to, it was back around 1914.

Q. 19. When did you see a cap with a metal foil spot secured by gutta percha?

A. Why, in 1919, the Kalak Water Company.

Q. 20. Do you recall any officers of the plaintiff company visiting your plant during the years 1933, 1934?

A. Yes, Mr. Fusting and Mr. Nagel called on us in 1933.

Q. 21. About what month?

A. Why, the first time was the spring, I think it was.

Q. 22. Did they call on you in August, 1933?

A. Well, I remember seeing Mr. Fusting and Mr. Darby [fol. 419] at that time, but I only came into the office after the business interview that they had had there had been completed.

Q. 23. Prior to the first threats of infringement by the plaintiff in this suit, which was sometime in 1933, was it not? When did you first hear of any threats of infringement by Crown Cork & Seal Company?

A. Early in 1933.

Q. 24. Prior to that time had the plaintiff ever sued you, threatened to sue you, for invasion of any of its patent rights, prior to 1933?

A. With relation to the—

Q. 25. Center spot crowns?

A. Center spot crowns, no, they did not.

Q. 26. Do you know that Gutmann is making and selling to the Inecto Company today large quantities of center spots of what we call the Millis type?

A. Yes.

Mr. Warland: That is all.

Cross-examination.

By Mr. Scull:

X Q. 27. When was it that the Gutmann Company began the manufacture of crown caps?

A. We began manufacturing—crown caps entirely you mean?

X Q. 28. Yes.

A. In 1914. We had been selling them for many years before that.

X Q. 29. I suppose that you kept track of any development in crown caps that appeared on the market after 1914?

A. Well, in a general way.

X Q. 30. You were manufacturing crown caps in rather a large way from 1914 on, were you not?

A. Well, yes, we were.

X Q. 31. When you saw this gutta percha held spot in 1919, to the Kalak Company, you were interested enough [fol. 420] to pull it apart, I suppose, and see how the thing was made?

A. Yes.

X Q. 32. And did you give any considerations to your going into that particular business at that time?

A. Not at that time.

X Q. 33. Why not?

A. We were doing most of our business, practically all of it with the brewers and these were tin-foil spot crowns, being used on mineral water.

X Q. 34. At the time about how many plain crown caps were you selling in 1919, annually?

A. I have not looked it up, but roughly I should say perhaps about two million gross, but they were substantially all natural cork crowns in which we were essentially interested.

X Q. 35. And was this Kalak sample that you saw in 1919 also natural cork?

A. Yes, but with a tin-foil spot.

X Q. 36. And how do you know that was held on with gutta percha?

A. I beg your pardon?

X Q. 37. I say how do you know that was held on with gutta percha?

A. I examined it and I found some of the crowns that I had taken at that time, when we moved here last December.

X Q. 38. Did you at that time in 1919 know that it was held on with gutta percha?

A. I would not be willing to say that now. It is quite evident they were held on with some rubber compound, but I cannot say now that at that time I was convinced of it being held on with gutta percha.

X Q. 39. Now you took on this Inecto business in 1920, when?

A. In the end of 1924 or 1925.

X Q. 40. Hadn't you been making plain unspotted crowns for Inecto prior to 1924?

A. Without spots?

X Q. 41. Yes.

A. I believe we did but I have never looked that up.

[fol. 421] X Q. 42. Several months before the end of the year at any rate?

A. I haven't looked up the records on that and I cannot say definitely.

X Q. 43. Do you remember what the number of caps were that Inecto agreed to take annually?

A. When?

X Q. 44. When you took their order.

A. I don't recall the contract.

X Q. 45. You thought it was a sufficient amount to interest you to take on?

A. Yes.

X Q. 46. And to develop whatever was necessary to supply their wants?

A. We did.

X Q. 47. And that was a special size crown?

A. That was a special size crown.

X Q. 48. Did you make that size crown for anybody else?

A. At that time?

X Q. 49. Yes.

A. No.

X Q. 50. So that you had to make special dies for making the tin shells, didn't you?

A. Correct.

X Q. 51. And you also had to make special cork discs to go in it?

A. That is true.

X Q. 52. And the size of the order, of the respective order from Inecto was enough, in 1924, to induce you to go to all that expense?

A. Quite evidently. My recollection is that Inecto was willing to pay for some of the preparatory cost, but I haven't looked up the records on it.

X Q. 53. You did bill them subsequently for their experimental work after there had been some inter-office communication?

A. That is my recollection.

X Q. 54. But that was not part of the original agreement with Inecto?

A. I don't think it was.

Mr. Scull: That is all.

[fol. 422] Redirect examination.

By Mr. Warland:

R. D. Q. 55. When you made these caps for Inecto you had to make them of a smaller size than was on the market at that time?

A. Yes.

R. D. Q. 56. This cap I show you with a B on the back of it, is that the size you had to make for the Inecto?

A. That is the size, yes.

Mr. Warland: I will offer that in evidence.

(Marked Defendant's Exhibit QQQQ in evidence.)

R. D. Q. 57. Now, of course, the making of the crowns of a smaller size involved some expense?

A. Yes.

R. D. Q. 58. But the price that you agreed with the Inecto Company to make these caps for was sufficient to warrant that additional expense, was it not?

A. Yes.

R. D. Q. 59. In the case of the caps of a standard size

which were being used by brewers you had to compete with other manufacturers, is that right?

A. Yes, indeed.

Recross-examination.

By Mr. Scull:

R. X Q. 60. In addition to making new punches and what not to make that smaller crown you also had to make some changes in your lithographing plant, did you not? You had to make some changes in the way you lithographed the caps on the sheet of tin?

A. No, I do not think so.

R. X Q. 61. Didn't you have to make some arrangement, some changes by which you slit up that sheet after it was lithographed?

A. Oh, yes, you mean—well, that would make no change [fol. 423] in the lithograph, a change in the handling of the sheets afterwards.

R. X Q. 62. Yes.

A. But we were manufacturing regular crowns in that way too at that time, by slitting the sheets.

R. X Q. 63. But you had to change all the spacing of the slitting knives, of course, because there was a smaller piece to be slit up, is that right?

A. Yes, that would be true.

R. X Q. 64. And you also had to change your assembling machines, did you not, put in smaller racks to advance—

A. That is where the main initial expense came in, changing the assembling machines for taking care of that smaller cap.

R. X Q. 65. But you also had to make new dies to blank out the original tin cap, did you not?

A. Yes, very true, but the main expense was in the assembling machine.

Redirect examination.

By Mr. Warland:

R. D. Q. 66. Just a moment; I hand you a memorandum and ask you if that refreshes your recollection in any way

as to making any changes made necessary for making caps of the size called for by Inecto?

A. Yes, I find that we made the crowns, the smaller crowns without the center spot before 1924, and part of our expense was involved at that time.

R. D. Q. 67. At what time?

A. Back in 1923, so far as I can see, it was back in 1923, when we made dies for the small size crowns first and then changed, so far as the center spot, that came in late in 1924 or 1925. It was 1925.

R. D. Q. 68. I understand in 1923 you sold these small size [fol. 424] caps to Inecto, and had to have small size dies for them without a center spot?

A. Without a center spot.

R. D. Q. 69. And in 1924 you had to make a change having the center spots?

A. That is right.

R. D. Q. 70. Now, you were asked about the cost of lithographing. Do you do lithographing yourself, or is that done for you by somebody else?

A. We have it done by somebody else.

R. D. Q. 71. And that applies to every new order, doesn't it?

A. It does.

R. D. Q. 72. For instance, if any new brewer comes in and wants a special kind of a cap with a special decoration, you have to have that special decoration lithographed and pay extra for it to your lithographer, is that correct?

A. Yes.

JOHN J. DARBY, called as a witness on behalf of the defendant, having been duly sworn, testified as follows:

Direct examination.

By Mr. Warland:

Q. 1. You are one of the counsel of record in this case, are you?

A. That is correct.

Q. 2. Did you prepare the answer to the bill of particulars given by the plaintiff as to the dates of conception and reduction to practice in each one of the patents in suit here?

A. Those dates were furnished by Mr. Fusting of the Crown Cork & Seal Company after reviewing the records of the Crown Cork & Seal Company such as we had available and such records were in my office.

[fol. 425] Q. 3. I want to ask you some questions in reference to the patent to Warth No. 1,899,783. .

A. May I have a copy of the patent? 783, do you say?

Q. 4. Yes.

A. I have it.

Q. 5. The serial number of the original application in that patent is No. 360,895. Now, during the prosecution of that application certain claims were copied, for interference purposes, from the patent to Lange, were they not?

A. It is my recollection that they were.

Q. 6. And did you have anything to do with preparing the preliminary statement of Mr. Warth, which was filed in that interference? I show you a certified copy.

A. There were two Lange interferences and I will have to see the record to get the two distinguished.

Q. 7. I am now talking about No. 60,931.

A. May I see the claims in this interference, because there were two interferences? It is my recollection that it was patent No. 1,899,782 that was involved in the interference No. 60,931. I may be wrong.

Q. 8. You are wrong on that, Mr. Darby.

A. If you will let me see the declaration of interference I can tell you.

Q. 9. Do you mean patent 782?

A. Yes. This preliminary statement relates to some particular claims, and I cannot tell just what it relates to until I see the claims. If you will let me see a copy of the Lange patent, I think that will be adequate, No. 1,779,884. Yes, I recall it now. I prepared this preliminary statement on the basis of information given me at that time.

Mr. Warland: I offer in evidence certified copy of the preliminary statement of Albin H. Warth, in interference [fol. 426] No. 60,931 entitled "Warth vs. Lange."

(Marked Defendant's Exhibit RRRR in evidence.)

Q. 10. Now, in that interference 60,931 you made a motion to dissolve, did you not, on the ground of public use?

A. No. The first proceeding in the interference, as I recall it, was a motion by the party Lange to dissolve on the

ground that Warth could not make the claims. The Examiner of Interference sustained that motion and the record will show the grounds, and Warth appealed to the Board of Appeals, and the Board of Appeals held that the Warth application disclosed the subject matter of this broad Claim 2, which calls for a cap having a layer of sheet material and alcohol resistant filled with varnish adhering to one surface of the material and then a layer of resilient material—that is, cork—having waterproofed bonding. So the Board of Appeals, for the reasons that will show, held that Warth could make that claim.

Q. 11. Then after the decision by the Board of Appeals the interference was renewed on this claim of the Lange patent as the issue?

A. That is right.

Q. 12. Then you made a motion to dissolve after the testimony had started to be taken by Lange, did you not?

A. That is not exactly correct, no. After Lange had taken his testimony, which lasted for a period of two or three days, certain admissions made by Lange in his testimony taken in connection with evidence which we then found at the Crown Cork & Seal plant showed that the [fol. 427] Crown Cork & Seal Company, as well as other manufacturers as far back as 1915, had made a cap with simply a facing on of heat and alcohol-resisting coating and varnish and waterproof adhesive sticking that face to the cork, and therefore we felt there was nothing there which could be patented and which could be contested. We therefore filed a statement in the Patent Office to the effect that we had no desire to contest any interference on any such unpatentable matter. As a matter of fact, we have the correspondence here, I brought it in response to your subpoena to show you what we were referring to at that time. If you would like to see them, I will show them to you.

Q. 13. I show you paper No. 28 in interference No. 60,931, which is headed Motion to Dissolve, and says, "The party Warth moves either that a public use proceeding be instituted or that this interference be dissolved. Investigation by counsel preliminary to taking proof has established that the invention has been in public use by the Crown Cork & Seal Company of Baltimore, Maryland, assignee of the Warth application, as well as by others in the United States since 1918, and even though the party Warth should

prevail in the issue of priority a patent could not be granted. Alvin H. Warth, by Cushman, Darby & Cushman, Attorneys."

You made an affidavit attached to that?

A. May I explain that, in response to the previous question I wasn't considering this technical matter. That is what we filed, yes.

Q. 14. This is entitled a motion to dissolve?

A. That is correct, but it is a statement that we desired no further contest.

[fol. 428] Q. 15. And you attached an affidavit to that motion?

A. That is correct, I believe. I would like to see it.

Q. 16. I notice that affidavit states, "That recently deponent had occasion to examine the proofs available in support of the case for the party Warth in this interference, and that to deponent's surprise it was found that the assignee of the application, Crown Cork & Seal Company of Baltimore, Maryland, had been manufacturing and selling caps having therein (a) a cushion liner (b) a paper facing united to the cushion liner by (c) a waterproof adhesive, and (d) a varnish facing on the paper resistant to acids and alcohol.

"That deponent has found that this material has been manufactured and sold by the Crown Cork & Seal Company, as well as by others in the cap industry almost continuously since 1915 or 1916."

Is that the affidavit that you signed?

A. That is correct, that is the affidavit.

Q. 17. You say that material has been manufactured and sold as well by others in the cap industry. Can you tell me who those others were?

A. Right now I do not recall the others, but I believe the Lange testimony—I haven't read it for, I should say, two years—referred to manufacture by other companies, among those being the Irvington Varnish & Insulator Company, making a certain Harvel paper, which had an alcohol resistant finish in the caps and sold to cap manufacturers, and the Pittsburgh Varnish & Insulator Company, which also sold to cap manufacturers. As a matter of fact, I went [fol. 429] to Pittsburgh to investigate that use at that time before making the affidavit.

Q. 18. Now, after you filed this motion to dissolve or statement to the Patent Office, whichever you choose to call

it, Lange refused to file his testimony on the ground that the interference had been dissolved?

A. That is correct, he did not file it. As a matter of fact, I could not get my records which had been left with the notary, or my partial copy of testimony which had been left with the notary public. And we filed a petition with the Commissioner of Patents to compel Lange to deliver our copy of testimony on which partially we had based that statement, and there was a hearing before the Commissioner in which he ordered them to produce those papers.

Q. 19. There were several hearings and voluminous briefs and memoranda filed by both sides?

A. There were, in our efforts to get those papers to make them available for reference.

Q. 20. You made an affidavit annexed to that first petition, did you not?

A. I would like to see it, there were so many papers there.

Q. 21. Just a moment and I will find it. I show you an affidavit signed by John J. Darby on May 20, 1932, and that affidavit contains the following statements: "That the statements made in deponent's affidavit filed April 5, 1932, as well as in the motion to dissolve, were based largely upon testimony given by the party Lange, since the party Lange had furnished materials to the Crown Cork & Seal Company during the years in question and had confirmed deponent's suspicions, previously stated to attorneys for Lange, that material made by the party Lange and used [fol. 430] for many years by the Crown Cork & Seal Company responded to the single claim in issue."

A. That is right; that is referring to this Claim 2 of patent 1,779,884, granted to Lange.

Q. 22. You also said in that affidavit that, "Deponent based his affidavit in support of the motion to dissolve largely upon the testimony and admissions by the party Lange"?

A. That is correct.

Q. 23. Have you got the testimony of Lange?

A. Yes, I have it here. I may say I haven't read it for two years, but I have it here.

Mr. Warland: In the meantime I will mark in evidence the affidavit of John J. Darby, dated May 20, 1932.

(Marked Defendant's Exhibit SSSS in evidence.)

Q. 24. You have some papers in your hand. Am I to understand that is all the testimony given by Lange in this proceeding?

A. I cannot tell you anything about these papers except this: That after our unsuccessful attempts in the Patent Office to obtain the testimony that was taken by Lange, the Commissioner having issued two orders on his attorneys to produce them, the papers having largely my personal notes on them, we filed a suit in the—the Crown Cork & Seal did, we as their attorneys, in the United States District Court for the Southern District of New York, to compel them to produce those papers.

After that suit was filed Mr. Lange said that he would order his attorneys to produce what papers they had. I [fol. 431] received a brown envelope—that happens to be the original envelope—with these papers and I think it was about a year and a half ago, and some exhibits. These are the papers that were delivered to me and that is all I know about them. I have not read the testimony since because the interference had terminated and that is all I know about it, and here they are. This may be the testimony and it may not.

Q. 25. You say it may not; it is all the testimony in the Lange Interference No. 60,931 that you know about?

A. I mean that is all I have.

Q. 26. And all you ever did see, is that right?

A. Why, a lot of it is what I have never seen because the testimony concluded before I had received 50 per cent. of what is there.

Q. 27. So far as you know does this constitute all the testimony in that interference?

A. So far as I know.

Mr. Warland: I offer that testimony in evidence.

Mr. Scull: I object to it, if the Court pleases, except in so far as it may merely be a paper that Mr. Darby produces.

The Court: I will take it, as Mr. Darby stated, that he did not know it was all of the testimony. It is simply what he received.

Mr. Scull: All I want to say, your Honor, is that it be understood that we are objecting to its use as proof of any of the statements contained in that testimony.

Mr. Warland: I should like to say in that connection that I tried strenuously to get Mr. Lange here as a witness. I

[fol. 432] had a process server working on him for two months in Jersey but we have been unable to get him.

The Court: I will take it, but it is not a substitute for testimony of Mr. Lange given here. If that is your purpose it will not be received. It is not evidence of anything he would testify to. All that you can use it for would be in so far as it might be information on which Mr. Darby relied, but it is not a substitute for the testimony of Mr. Lange taken on this stand will not be considered by me as testimony of Mr. Lange.

Mr. Warland: I am not offering it as evidence of the facts but simply to give Mr. Darby an opportunity to explain some of it.

The Court: I will take it as that on which Mr. Darby may have relied on making any statement. Mr. Darby said to some extent he did rely on that and to that extent I will receive it.

Mr. Warland: Thank you, your Honor.

(Marked Defendant's Exhibit TTTT in evidence.)

Q. 28. As I understand you Lange repeatedly refused to file that testimony and you had to bring a suit against him in the United States District Court?

A. If you please, against his counsel who had the testimony and who refused to produce it.

Q. 29. And the suit was brought against Pennie, Davis, Marvin & Edmonds?

A. That is correct."

Q. 30. Tell me, how was that suit terminated, that you [fol. 433] speak of as having been brought against Pennie, Davis, Marvin & Edmonds, to compel Lange to file that testimony?

A. It is going back I guess a year or two. I will try to tell you as accurately as I can. I know that it was settled by Lange saying that he did not care to spend money on the thing any further, that he was not going to pay his counsel any more money and that so far as he was concerned he would tell them to deliver a copy of the testimony.

Q. 31. Then there was an agreement made with Lange, was there not, about that time?

A. There was a license agreement granted Lange, yes. I think that if I may look at the paper—Mr. Lange was

granted a license to manufacture paper for Crown Cork & Seal licensees, for spots.

Q. 32. Do you have a copy of that here?

A. I think I have.

Q. 33. Will you please produce it?

A. Yes, sir. I have here a carbon copy of an agreement that was in my file. I don't have the signed copy and in substance I am pretty sure this correspondence with the one that was signed. I will check it later and if there is any discrepancy I will try to obtain the original for you. This is simply my carbon copy for my file.

Mr. Warland: I offer this copy, subject to corrections if necessary by comparison with the original, in evidence.

(Marked Defendant's Exhibit UUUU in evidence.)

Q. 34. Who would have signed that agreement, Lange and the Crown Cork & Seal?

A. That is correct.

Q. 35. Now I notice on an inspection of the file of that [fol. 434] suit in the Southern District of New York to which you have referred, the file contains the following, recorded on the 31st day of January, 1934. Paragraph 2 of the order, "That in accordance with paragraph 2 of the agreement heretofore entered into by and between the Crown Cork & Seal Company, Inc., party of the first part and L. G. Lange, party of the second part, the firm of Pennie; Davis, Marvin & Edmonds of which certain of the defendants herein are members, shall deliver forthwith, upon the signing of said agreement, a complete copy of testimony taken in a certain interference proceeding involving the Lange patent No. 1,779,884, including the partial copy bearing notes made by Crown Cork & Seal Company's attorneys, and also photostatic copies of all exhibits introduced in evidence; the latter to be prepared at the expense of Crown Cork & Seal Company, the plaintiff herein.

"That this action be and the same hereby is dismissed with prejudice but without damage or costs to either party."

Do you remember such an order being entered?

A. No, I do not. You see, I had nothing to do with the order up here. The case in the court was handled primarily by Mr. Thomas Ewing as I recall it. I am speaking however purely from memory and those details have not left a very vivid impression in my mind.

Mr. Warland: I offer a copy of that portion of the order, with the privilege of putting in a certified copy of the order at the proper time, in evidence.

(Marked Defendant's Exhibit VVVV in evidence.)

[fol. 435] Q. 36. Now, while all this proceeding was going on in court, in the suit against the attorneys for Lange, what happened to the interference?

A. I would have to determine that by comparing the dates of the interference records with the dates of the order because—I would not want to testify from recollection. If I saw the dates of the decisions of the interference and compared them with the date of the court order I can probably tell you. I do recall that the interference proceeded, and that it was reinstated by the Commissioner and that Lange still declined to file his testimony and that an award of priority was issued to Warth by reason of Lange's refusal to file his testimony.

Q. 37. I will read this paper and I will ask you if that refreshes your recollection. It states, "August 24, 1933, paper No. 64, Interference No. 60,931, Lange vs. Warth. The date set for final hearing in this case having passed and Lange, the junior party having failed to file any testimony within the time allowed for that purpose a priority of invention of the subject matter at issue here is hereby awarded to Warth, the senior party, dated December 11, 1933." Does that refresh your recollection as to what was done?

A. It refreshes my recollection to the fact that there was a decision entered and the date of the decision, but I cannot correlate that with the other events until I see the dates of the court order.

Q. 38. That court order is dated January of 1934.

A. And this order is 1933. It confirms my impression that I had but I did not like to testify to it. We were persistently trying to get that testimony. We went to the [fol. 436] Commissioner twice and he issued two orders on Pennie-Davis compelling them to file it and they defied him. They even threatened to me to file a bill in equity against the Commissioner of Patents, to prevent him from reinstating the interference. This interference terminated while we were still battling with Lange trying to get that testimony.

Q. 39. So far as the proceedings in the interference in the Patent Office show it is a fact, is it not, that a judgment of

priority was taken by default against Lange while the suit was pending?

A. Upon claim 2 of the patent No. 1,779,884 to Lange, the Lange patent, that is correct.

Q. 40. That serial application No. 360,895, which was the subject matter of this application for Warth patent No. 1,899,783 was finally abandoned was it not?

A. May I see a copy of both files and I will answer that. I do not like to speak from memory.

Q. 41. I show you the file of 360,895 and the file of patent No. 1,899,783.

A. I now recall this. Following the conclusion of that interference on claim 2 of the Lange patent 1,779,884 I advised the Crown Cork & Seal Company that the subject matter of that interference was entirely too broad, that in view of the evidence we have the thing to do was to abandon such subject matter as the subject matter of that claim. We had pending another application, Serial No. 492,546, directed to more specific subject matter—

Q. 42. Would you mind stating when that was filed?

A. Filed on October 31, 1930, but containing in the specification a virtual duplicate, in other words, there were broad claims in the case in the Lange interference and specific claims in the other case. So I advised them to abandon that case and to take out the specific subject matter in the other co-pending application.

Q. 43. Those claims which you have in the divisional case you filed and which are now the six claims of this patent 1,899,783; those were filed in the original case 360,895 for the first time in April, 1932, were they not?

A. The record would show that.

Q. 44. That is a matter of record?

A. That is a matter of record.

Q. 45. Let us go to the so-called Johnson patent 1,967,195.

A. May I have a copy of it, please?

Q. 46. Have you got a copy of patent 1,967,195?

A. That is the Johnson patent?

Q. 47. Well, it is entitled Warth patent but—

A. Which do you want me to look at, the Johnson patent or Warth patent?

Q. 48. I wish you to look at the Warth patent 1,967,195.

A. Oh, yes.

Q. 49. That is the patent containing the three method claims for manufacturing the cap.

A. This is a patent containing three specific divisional method claims, claims limited to a species of the original method disclosure.

Q. 50. They are the method claims of that patent that you are suing us on, is that right?

A. They are the claims of one of the method patents we are suing you on.

Q. 51. This patent 1,967,195, that has the three method claims?

A. Well, yes, there are three claims.

Q. 52. Those three are all in suit?

A. That is my recollection.

Q. 53. When Mr. Warth filed that application you copied claims 28, 29 and 30 of the Johnson patent 1,852,578, for in- [fol. 438] terference purposes, did you not?

A. We copied certain claims of the Johnson patent. Do you wish me to check those numbers? We copied claims 28, 29 and 30 in Johnson patent 1,852,578.

Q. 54. And that interference was promptly declared by the Patent Office?

A. It was.

Q. 55. And then in that interference you made a motion to shift the burden of proof in order to obtain the date of January 7, 1927, which is the date of the patent to Warth 1,788,260, is that right?

A. That is correct.

Q. 56. That motion to shift the burden of proof was denied by the Examiner of Interferences on the ground that the Warth application of January 7, 1927, did not have sufficient disclosure to warrant Warth making these claims in interference?

A. The grounds are stated in the decision.

Q. 57. That decision came down approximately in October, 1933?

A. I do not recall the date, but it came down after a hearing.

Q. 58. After that decision came down then the Crown Cork & Seal Company bought this patent from Johnson No. 1,852,578, did it not?

A. There is a great deal more than just that to it, if I may explain it.

Q. 59. You got an assignment from Johnson of that patent?

A. Ultimately we purchased the patent, yes.

Q. 61. Have you got the original assignment?

A. Have I got the original assignment?

Q. 62. Yes.

A. I have the original assignment or at least a copy of it.

Q. 63. Now, I want the original if you have it.

A. I will see if the original is here.

[fol. 439] Q. 64. We have a copy in evidence, I want the original.

A. I do not have the original here, but I think Mr. Fusting has the original. I might explain that we never keep the originals of assignments as counsel for any client.

Q. 65. I show you a decision of the Examiner of Interferences in Interference Warth v. Johnson, No. 66,201, dated October 2, 1933, and ask you if that refreshes your recollection as to when the decision was rendered.

A. It does.

Q. 66. That was the decision in which the Examiner denied Warth's motion to shift the burden of proof?

A. To shift the burden of proof, yes.

Q. 67. It appears in evidence here from the copy of the assignment of Johnson to Crown Cork & Seal Company that that assignment was executed December 12, 1933.

A. It was as I recall some time in December, yes.

Q. 68. Now, the record in the Patent Office in that interference shows a stipulation was made on March 16, 1934, to the effect that the record for Warth should consist of an affidavit of Frank Lloyd, Monroe Humason and Albin H. Warth. I showed you that stipulation.

A. I recall that stipulation, yes.

Q. 69. And the paper you have in your hand is the printed record for Warth in the final hearing in that interference consisting only of those three affidavits?

A. That is correct.

Q. 70. And that was the only record that was put before the Patent Office?

A. That is correct.

Q. 71. And in view of those affidavits the Examiner of Interferences reversed his prior decision and gave Warth the benefit of the January 7th, 1927, application, is that correct?

A. That is correct.

[fol. 440] Q. 72. Now, if Crown Cork & Seal Company owned this Johnson patent in December, 1933, why did you go through this interference proceeding in the Patent Office making up this record of three affidavits?

A. The explanation is this: Following the decision of the Examiner of Interferences refusing to shift the burden of proof, we immediately made plans to take testimony. We issued a subpoena on Mr. Johnson as the first witness for the Crown Cork & Seal Company. We came to New York prepared to take testimony in Brooklyn. When we arrived there, Mr. Johnson, being there under subpoena, asked us if we would not settle. We told him that we would settle for the cost it would involve in fighting the thing, and nothing more. He said that he would like to stay in the business, he wanted to make machinery, since that was his living, and Mr. McManus, I took it up with him, and he said he had no objection since someone had to make the machinery for Crown Cork & Seal Company's licensees, and it was not the practice of Crown Cork & Seal Company to sell machinery to them, so therefore he was willing to give Johnson a license. That being the case, we settled with Johnson.

There still remained, however, the question as to whether Johnson or Warth was entitled to the claims. I discussed the matter with Mr. Seifert, Mr. Johnson's attorney, and we felt that counsel should not take upon themselves the responsibility of allocating claims, particularly since some of these claims were in an issued patent. We therefore decided to let the Patent Office decide the matter finally, so that the record would stand. In the course of the discussion with Mr. Seifert, he agreed that the only question involved was whether Warth was entitled to the [fol. 441] benefit of the filing date, the January, 1927, date. He admitted that if Warth was, that Johnson was not entitled to priority since Johnson could not prove any dates earlier than Warth's filing date, January of 1927. We therefore agreed, as counsel, to submit the matter to the Patent Office on this sole issue, at a final hearing. The reason that we went to final hearing was that the Examiner of Interferences in this previous decision had said, on the motion to shift the burden of proof, all doubts are resolved against the party bringing the motion, and it had to go to the final hearing where doubts would not be resolved and the matter would be decided in the issue at final

hearing. For that reason we submitted it to the Patent Office and informed the Patent Office of the existing situation and told them that arrangements had been made whereby assignments would be delivered to the Crown people upon the decision of the Patent Office. The assignments at that time were in escrow.

Q. 73. Well, why didn't you record the assignment with the Patent Office?

A. The assignment was in escrow with the agreement until the Patent Office decided the question of final hearing.

Q. 74. And did the Patent Office know of the assignment?

A. They fully knew of the assignment.

Q. 75. And they knew the Crown Cork & Seal Company was the owner of the Johnson patent?

A. It did. It was informed not only by me, but by counsel for Johnson.

Q. 76. Now, let us go to patent 1,899,782.

A. Yes.

Q. 77. I show you the file of patent No. 1,899,782, two claims of which are in suit here. That application became [fol. 442] involved in an interference, did it not, with another patent of Lange's?

A. That is my recollection, yes.

Q. 78. Patent 1,758,610, to Lange?

A. That is correct. The issue was the single claim of the Lange patent.

Q. 79. Do you mind reading that, please?

A. "As a new article of manufacture, paper having a high gloss and having a coat of varnish on one surface of the paper and a coating of gutta percha on the other surface of the paper."

Q. 80. The preliminary statement of Mr. Warth in that interference states that he conceived the invention defined on or about the 1st day of July, 1915, and that he first disclosed said invention to others on or about the 1st day of July, 1915, and that he first made a written description of the said invention on or about the 1st day of January, 1917; that drawings of said invention were first made on the 1st day of August, 1926, and that the invention was reduced to practice by manufacture, using material of the character defined by the count on or about the 1st day of June, 1915, at Baltimore, Maryland, and that material of the character defined has been made and used in large quantities since

January 1, 1915. Did you prepare that preliminary statement?

A. On the basis of information given to me at that time, I think the record shows fully what the dates refer to.

Q. 81. Now, you took the testimony of Mr. Warth in that proceeding, and all the witnesses for the Crown Cork & Seal Company, did you not, as counsel?

A. That is right.

Mr. Warland: If your Honor pleases, I do not want to [fol. 443] take the time of reading certain essential parts of this testimony in here. If I offer this whole thing as an exhibit, it consists of well over 200 pages. I would like to offer it and be able to refer to the pertinent parts on a brief or in summing up.

Mr. Scull: Is this the record on behalf of Warth?

Mr. Warland: Yes.

The Court: Why don't you offer it and then in the event that you ever want it printed, you can agree on the part that you want printed? It can be taken as a whole and either side can refer to any part of it that they want.

Mr. Warland: Very well, your Honor, I offer it in evidence with that condition.

(Marked Defendant's Exhibit WWWW in evidence.)

Q. 82. Now just once more, to make it perfectly clear, has this assignment from Johnson to the Crown Cork & Seal Company, ever been recorded?

A. I think it has.

Q. 83. You don't know?

A. I have a very definite impression that it has.

Q. 84. How recently?

A. You are asking me a very difficult question. I should say it was recorded six or seven months ago or around that time, it may be four months, I just cannot recall, but the records in the Patent Office would show that.

Q. 85. The last time I looked it showed that it was not recorded.

A. My impression may be wrong. On second thought, with regard to that, perhaps that was recorded two months ago.

[fol. 444] Cross-examination.

By Mr. Scull:

X Q. 86. On direct examination you referred to some caps which you had here which illustrated what turned out to be the scope of the subject matter of the count in issue in the first Lange interference. Will you produce those caps, please?

A. Yes, sir. I do not have them here now, but I have them in the hotel and will get them.

X Q. 87. There is one expression that counsel used, that I think might better be explained. He said that judgment was taken on priority on this first Lange interference in favor of Warth. What is the fact as to Patent Office practice in a case of that sort? Does either of the parties have to do anything or is judgment entered automatically by the Patent Office officials?

Mr. Warland: Just a moment. Doesn't the record speak for itself on that point? I read to him a statement from the Patent Office showing priority was awarded to Warth in view of Lange's failure to take testimony. Judgment by default.

The Court: He is asking whether they entered judgment or whether anything is necessary in addition to that statement.

Mr. Scull: I want to rebut any implication that we made any move there to have priority awarded to us.

The Witness: Where an interference has gone to the testimony stage, as that one had done, and where the junior party, that is, the later one to file, such as Lange in this case, fails to file any testimony, the Patent Office of its own [fol. 445] initiative terminates the interference by awarding priority to the senior party simply upon attention being called there has been no testimony filed.

X Q. 88. As a matter of fact, you cannot stop that award of priority, can you, if you wanted to? Is there any procedure that provides for that?

A. I know offhand, after an interference has gone to that stage, of no way of terminating except by an award of

priority for one party or another unless by agreement, and we could not reach any agreement with Lange.

The Court: You could withdraw it or discontinue it, couldn't you, by agreement?

The Witness: By agreement.

The Court: If the two parties agreed, you could have withdrawn it?

The Witness: Yes.

Mr. Scull: After an interference is once declared, and they are declared automatically, the Patent Office will not dispose of that without some judgment in some fashion.

The Court: You cannot withdraw alone, but you can by agreement with both parties, can't you?

Mr. Scull: No, your Honor, we could agree that priority be awarded to one party or another, but we could not withdraw as you would withdraw a suit, for instance, because the Patent Office must determine whether or not a patent is to be issued.

X Q. 89. That is a correct statement is it not, Mr. Darby?

A. That is correct.

[fol. 446] X Q. 90. Now, my understanding about this testimony was that at least so far as the proceedings in the Patent Office were concerned, what you were trying to do wasn't merely to get a copy of that testimony for yourself but to compel counsel for Lange to file it as part of the public records in the Patent Office?

A. That is correct, so that the public records would always show that this was a matter of common use in those days.

Redirect examination.

By Mr. Warland:

R. D. Q. 91. Why didn't you file the testimony from Lange when you got it?

A. The testimony from Lange was not received, or the papers that were handed to me were not received until at least six or eight months, as I recall it, after the interference had been concluded and all matters were over.

R. D. Q. 92. You could have delayed this judgment paper being issued to Warth until after you got that testimony, couldn't you?

A. I suppose so, although I don't know whether the Patent Office would or would not have delayed it.

R. D. Q. 93. You did not try it?

A. I had a number of extensions obtained, yes, at least two or three were obtained, as I recall it, but again I am speaking from recollection.

R. D. Q. 94. I show you an advertisement in a magazine entitled "Spot Crowns," put out by the plaintiff, dated July, 1933, and that advertisement states in part, "The conclusion of litigation involving spot crown patents, paper tin-foil and aluminum-foil has resulted in the award to the Crown Cork & Seal Company, Inc., of the following patents: [fol. 447] 1,899,782, 1,899,783," also other patents, but those two patents are the patents in suit.

Now, did you have anything to do with the insertion of that advertisement?

A. As I recall, nothing whatsoever. I remember seeing it, but I do not think I ever saw it until after it was printed. I may have.

R. D. Q. 95. Was that the litigation which you just testified about?

A. I didn't write the advertisement, so I do not know.

R. D. Q. 96. Is this litigation involving these two patents, is that the interference litigation you have just been talking about in the Patent Office?

A. I presume that that is what the one who wrote the advertisement is referring to.

R. D. Q. 97. But you do not know?

A. Frankly, I do not know.

Mr. Warland: I offer this magazine in evidence.

(Marked Defendant's Exhibit XXXX in evidence.)

Mr. Warland: I offer in evidence the record of interference 66,201.

(Marked Defendant's Exhibit YYYYY in evidence.)

Mr. Warland: I offer in evidence a copy of the McManus patent in suit 1,339,066; and the references set up in the answer.

(Marked Defendant's Exhibit ZZZZ in evidence.)

Mr. Warland: I offer in evidence a certified copy of the File Wrapper and contents of the application of Albin H. Warth filed November 7, 1930, Serial No. 494,201, which is [fol. 448] referred to in one of the patents.

(Marked Defendant's Exhibit AAAAAA in evidence.)

Mr. Warland: I offer in evidence a certified copy of the abandoned application of Albin H. Warth filed August 21, 1926, Serial No. 130,631.

(Marked Defendant's Exhibit BBBBB in evidence.)

Mr. Warland: It is stipulated on the record that the patent to Alberti 1,199,026, is owned by the plaintiff, Crown Cork & Seal Company, and has been owned by it since the amalgamation of the New Process Cork Company.

The defendant rests, if the Court please, with just one exception. I have not put an expert on the stand. As I understand, the function of an expert is to explain the structure of prior art patents. I do not think it requires an expert to explain the structure of a center spot stuck on a crown cork, and I will either go over the references very briefly now or refer to them in my brief, as your Honor prefers. I should think it might be better to leave it to the brief.

The Court: I do not care. If you put them in the brief I will read the brief.

Mr. Warland: Then I think that is what I will do.

The Court: If you want to do it now, it is immaterial.

Mr. Warland: I do not like to take your Honor's time.

[fol. 449] The Court: I will read the brief.

Mr. Warland: I will make the suggestion again then that your Honor inspect our plant. It may be after the other side put in their testimony your Honor might feel that you would like to see it.

The Court: Well, we will see.

JOHN W. GILBERT, recalled as a witness on behalf of the plaintiff, in rebuttal, having been previously sworn, testified further as follows:

Direct examination.

By Mr. Scull:

Q. 22. You are the John W. Gilbert who testified here before in the prima facie case?

A. That is right.

Q. 23. And you are employed by the duPont Company at the Parlin plant, that is right?

A. Correct.

Q. 24. And in your employment there as a chemist have you been accustomed to making exposure tests for lacquers and modifications of lacquers for special purposes?

A. I have been since 1923.

Q. 25. Now, have you recently tested the products of the materials set forth in reissue patent 16,803 and Hitt patent 1,710,453 to determine whether or not the materials made in accordance with the disclosures of those patents is thermoplastic or has thermoplastic properties?

A. I have.

[fol. 450] Q. 26. What is the fact for that?

A. As a result of my tests they have not.

Q. 27. In each case you have made up the composition as set forth in those respective patents, is that right?

A. I have, yes.

Q. 28. And then you tested that to determine whether or not after it was set it could be made tacky by heat, is that right?

A. I did, yes.

Q. 29. And you found it was not capable of that, is that correct?

A. That is correct.

Cross-examination.

By Mr. Warland:

X Q. 30. Do I understand you to say that the duPont Company—this 4620 does not contain the ingredients of Hitt 1,710,453?

A. I did not say anything like that.

X Q. 31. Well, does it contain the ingredients or is it the same as Hitt Patent No. 1,710,453?

A. I don't know.

X Q. 32. Do you know why this tin put out by the duPont people bears Hitt patent No. 1,710,453 and reissue No. 16,803?

A. I would not know that, it is handled by another department entirely. It is out of my province.

X Q. 33. Did I understand you to say when you were on the stand on your prima facie case you did not know what material the defendant was using?

A. The defendant?

X Q. 34. That is right, yes.

A. I don't know.

X Q. 35. I show you an article written in the duPont Magazine No. 6-7, entitled "Thermoplastic Cement. Another innovation from the same source is an adhesive that can be used to join wood and metal and a variety of other [fol. 451] dissimilar substances so that when once cemented together they stay that way. The bond is formed by fusing action resulting from the application of heat and pressure. This review is necessarily incomplete. Other developments are equally noteworthy but space forbids. It is enough to say that research is injecting new life in many industries; therein lies much of promise for the future." Does that refer to this 4620?

A. I would not know because I had no connection whatever with the article.

X Q. 36. You mean you had nothing whatsoever to do with this 4620 adhesive?

A. Nothing to do with the development of it.

X Q. 37. Don't you know anything about its sale—you know it is made in large quantities though, don't you?

A. I do.

X Q. 38. So far as you know it was advertised?

A. So far as I know, yes.

X Q. 39. And you know of a magazine called the duPont Magazine?

A. I do.

X Q. 40. And that is published every month and has been for a number of years?

A. Yes.

Mr. Warland: It is agreed between counsel that the date of this magazine is June and July, 1932, subject to correction. We have a photostatic copy but it is very indistinct.

The Court: Very well.

Mr. Warland: I offer this photostatic copy of the duPont Magazine article, page 60 thereof, in evidence.

(Marked Defendant's Exhibit CCCCC in evidence.)

[fol. 452] CHARLES E. McMANUS, called as a witness on behalf of the plaintiff, in rebuttal, having been duly sworn, testified as follows:

Direct examination.

By Mr. Scull:

Q. 1. Where do you reside, Mr. McManus?

A. Spring Lake, New Jersey.

Q. 2. And your occupation?

A. Manufacturer.

Q. 3. You are president of the plaintiff company?

A. I am president of the plaintiff company, the Crown Cork & Seal Company, yes, sir.

Q. 4. And you have been since when?

A. Since December 29, 1927.

Q. 5. And you are the Charles McManus who is named as the inventor in patent No. 1,402,780 and patent No. 1,213,926, which I now show you, are you not?

A. I am, yes, sir.

Q. 6. And did you ever attempt to make spot caps by means of the machine shown in patent 1,402,780 and with the spot material of patent 1,213,926?

A. Yes. That is 1,402,780?

Q. 7. Yes.

A. Yes.

Q. 8. Now tell us what the history of that was.

A. Of this particular machine?

Q. 9. Of the machine, yes, and—

A. This machine took care of two kinds of material, one was a parchment paper with glue and gelatine adhesive and the other was a tin-foil that carried a fibrous material with gelatine adhesive. The crowns were fed into the machine just before the paper was cut and there was a little reservoir with a dauber that contained water and formaldehyde and that would moisten cork and afterwards we would cut [fol. 453] out a disc and place it on the center of the cork and then she would go into the top pressure drum.

Q. 10. Now, first taking the paper, and what adhesive was used with that, did you say?

A. We used a glue and a gelatine adhesive, the same that is on any tape that you use today for corrugated boxes.

Q. 11. That is, it was water soluble?

A. Yes.

Q. 12. The same sort of thing that you put on postage stamps?

A. The same thing.

Q. 13. And what you were really doing was first moistening the surface of the cork which was already in the shell and adhered to the, moistening that surface and then bringing the glue down on it and using the moisture you had previously deposited on the cork to soften the glue?

A. That is correct.

Q. 14. What was your experience in connection with that so far as that method was concerned?

A. When we deposited the disc that was cut out of the strip in the crown she would be in the center, but that disc sort of floated on top of the crown, and as we moved it along to put it in the pressure drum a very large percentage would go off center, and this machine had a very slow speed, it ran at about a speed of 40 a minute, and even at that we got about 20 per cent. of them off center. It was a very costly method of manufacture.

Q. 15. How did you take care of that off-center, did you send out those caps?

A. Sometimes a few would get by, but we tried to pick them out by double inspection, an inspection would be at the machine and another one on the table.

[fol. 454] Q. 16. Now, are those that were off-center and those that were rejected, did that mean the whole cap was wasted?

A. No, we would pull the center spot off and re-run it again.

Q. 17. To what extent did you manufacture and sell such paper spots?

A. My recollection is where I worked on those things early in 1916, the war started, it came along and our factory was taken from us and we were forced to move and I was unable to get back again there until about 1919, at which time we sent out a number of samples to different customers, and then we shipped, I judge, from that time on until 1926, possibly in the neighborhood of 100,000 gross.

Q. 18. Were there very many repeat orders?

A. No, we always had trouble with it, and during that time I may say in 90 per cent. of the shipments we had to make adjustments.

Q. 19. They were using paper and did you tell us parchment?

A. We did use parchment paper, but there was not so many of those. What we sold the most of was tin-foil mounted on paper carrying this adhesive.

Q. 20. What was your experience with parchment paper?

A. Parchment paper would wrinkle and the moisture would go through the parchment paper back of the cork, and would moisten the glue and the disc would quite often come off and go in the bottle.

Q. 21. Now, the foil that you refer to, was that made up in accordance with this patent 1,213,926 in which, as I understand it, there appears a piece of paper that is fastened to the back of the foil with water glass?

A. Yes, we used water glass on the paper.

[fol. 455] Q. 22. That is to say the strip that you fed into the machine was first foil, then a strip of paper fastened to that foil by means of water glass, and on the outside of that paper there was this water soluble gum, is that right?

A. I can't find that patent.

Q. 23. That is 1,213,926.

A. That is 1,213,926?

Q. 24. Yes.

A. Why, yes, that was made up, we used the metal foil, then we used a silicate of soda to cement it to the fibrous material, and the fibrous material had glue adhesive on the underside.

Q. 25. That fibrous material was actually paper?

A. The fibrous material was actually paper such as you use today on cartons.

Q. 26. And that paper in turn had on its outside surface so far as the strip was concerned, water soluble cement?

A. That is correct.

Q. 27. Did you attempt to use any heat-fusible cement to fasten your spots on back in those early days?

A. I used, at times I used copal and resin with a little wax in it to soften it up, but we had great difficulty with that because it was rather brittle.

Q. 28. Had you worked on making spot crowns prior to this period beginning say in 1915?

A. I did.

Q. 29. Where was that?

A. In Millis.

Q. 30. Connected with the——

A. For the United Cork & Seal Company.

Q. 31. What was your work there?

A. My first work there was on the Rex patent which is known in this case as the Millis patent, where you cut the cork and insert a cup-shaped tin, tin-foil.

[fol. 456] Q. 32. Was there any work done in an attempt to avoid that?

A. Why, yes, in the latter part of 1911 we took away these cup-shaped discs, and I replaced them on top of granulated cork, and I would mold them directly in the shell with the granulated cork.

Q. 33. Did that work out successfully?

A. The holding of the disc in was much better than we could obtain with the natural cork, but our difficulty would arise there from kernels of the composition cork getting into the corrugations, and as we fed them in the hopper the small kernels of cork would sometimes come down in the chute and get in the bottles.

Q. 34. In that period from 1919 to 1926, when you were selling this 100,000 gross of spot crowns were you doing any experimental work in attempting to improve on the method?

A. Very little, because I was busy on so many other things at that time that I did not have time to do it.

Q. 35. Well, why were you interested in 1915 and 1919 in getting the spot crown?

A. I had always felt, from the time that I went to work with the United Cork & Seal Company, that if anybody could develop a commercial center spot crown, there would be a very large market for it, and it would probably replace the large volume of natural cork that was done by the Crown Cork & Seal Company at that time.

Q. 36. Your idea was that the composition cork plus the spot could be made cheaper than, and therefore would be able to replace the market which at that time, I understand, the Crown Cork & Seal Company had to a large extent, in natural cork?

A. I did.

[fol. 457] Q. 37. What has been the fact today? Has it worked out that way?

A. It has proven itself today, yes.

Q. 38. When did you first hear of a nitrocellulose resin cement for use with spot crowns?

A. The first I heard of it was through Dr. Warth sometime in 1930. He told me that he was working on thermo-

plastic cement, I did not know just what kind it was, but he told me it was thermoplastic.

Q. 39. You don't mean gutta percha?

A. No, it was along the gun-cotton line.

Q. 40. Did you see any specimens that he had at that time?

A. Why, he had samples, but I could not tell very much from the samples, and I told him I would like very much if he would spend a lot of time on this and see if he could make it commercial for us so it would run in our machines, and several times I went to him, but he said, "I am working on it, but I am busy and I cannot give a lot of time to it."

Q. 41. Do you know Mr. Weisenburg?

A. Yes, I do.

Q. 42. He was at one time in the employ of the Crown Cork & Seal Company?

A. Yes.

Q. 43. Did you ever have any contact with him, and particularly in connection with cement for attaching spots to crowns?

A. I did.

Q. 44. What was that?

A. Well, about a year after Dr. Warth talked to me about what he was doing, I was getting a little impatient with Dr. Warth for not giving us this, so we could use it commercially, so I went to our research department that is in the factory, where they did a lot of cork research work, and Mr. [fol. 458] Weisenburg had charge of it and I asked him if he would work on cellulose binders for me, but I did not let Mr. Weisenburg know anything about what Dr. Warth was doing, and then Mr. Weisenburg produced a number of samples, some made with nitrocellulose, and some with rubber in them, and some with glyptal resin, and finally he made one that was very, very good, and about that time, I believe somewhere in 1932, or sometime, Dr. Warth came along with his, and it looked so good to me that we went to look for equipment and then it took us quite a long time after that to get the necessary equipment to coat this on the metal-foil.

Q. 45. As I understand it, did you let Dr. Warth know that you had put Mr. Weisenburg to work on this nitrocellulose?

A. No, I have a habit in our research department—the research department is under me—and the engineering department—I very seldom tell one man what another man is

doing. I am always after pushing them to get results and I like competition in our research and engineering department.

Q. 46. You are acquainted, are you not, with Mr. John A. Johnson?

A. Yes.

Q. 47. Was Mr. Johnson ever at the plant of the Crown Cork & Seal Company in Baltimore, to your knowledge?

A. Yes.

Q. 48. When was that?

A. It was sometime, I believe, in March or April of 1928, several months after I had become president.

Q. 49. Just tell us about that, will you?

A. Mr. Johnson called me at the New York office and he says—he addressed me by the name of Mac, he says, “Now, [fol. 459] Mac, I am a stockholder in your company, and you are not going to be able to keep me out of the Crown Cork & Seal’s plant.” I said, “Of course not.” He said, “I would like to go down there sometime.” Then I heard again from him and I made an appointment to meet Mr. Johnson at the Baltimore plant. He came down there one morning either in April or May—I know it was before I went to Europe.

Q. 50. When was that?

A. Five or six weeks before I went to Europe. My recollection is I went to Europe either the last part of May or the first part of June.

Q. 51. That is in 1928?

A. 1928.

Q. 52. When Mr. Johnson came there how much of the plant did he see, to your knowledge?

A. I first took Mr. Johnson back to where the operation starts, that is where we granulate our cork. I took him through the cork department, and from that I brought him to the decorating department, where we decorate the tin plate, and from that to the stamping department, and then to the assembly department, and then to the tin spot department.

Q. 53. Now, about how many spotting machines did you have in operation on that floor at that time, do you remember?

A. Fourteen.

Q. 54. These machines were what you know as the Gobel spotting machines?

A. The Gobel type, yes.

Q. 55. And was Mr. Johnson shown those machines in operation?

A. He was.

Q. 56. Was he there for any length of time?

A. He was there for quite a while. I was in that department about five minutes with Mr. Johnson when the gong [fol. 460] was rung for me to answer the 'phone. I excused myself from Johnson and I went to the 'phone, and I was back again in about ten minutes. During that time Mr. Johnson was in that department. All in all I don't think he was there much over twenty minutes.

Q. 57. Was there any discussion, anything said by you to Mr. Johnson in reference to this machine?

A. I said to Mr. Johnson, "Well, I think we have got this thing licked for commercial, and we are now designing a new machine, and I expect to get very large production on it," and he said, "How are you protected?" and I said, "I am leaving that to the patent attorneys, and I think we are going to have and have got very good protection on the spot crowns."

Q. 58. How fast were these spotting machines running at that time?

A. 350 per minute.

Q. 59. I show you a couple of photographs and I ask you whether they show the machines which were in that spotting department when Mr. Johnson was there?

A. This is the machine, yes (examining photographs).

Mr. Scull: I offer these two photographs in evidence as a plaintiff's exhibit.

Mr. Warland: I object to them as being immaterial. Of course, I do not know the purpose of them. The question here is, did we infringe their patents, not what machine they are using.

Mr. Scull: If your Honor pleases, we must carry our date back, and this machine will come in as part of our carrying our date of invention back.

[fol. 461] The Court: I will take it. I do not know how much it will confirm.

(Marked Plaintiff's Exhibits 41 and 42 in evidence.)

Q. 60. To your knowledge, Mr. McManus, is it possible to attach a spot of foil having a gutta percha backing to

the cork of a crown without using a hot plunger or without preheating the cork?

A. Yes.

Q. 61. Have you seen that done?

A. I have.

Q. 62. How was it done?

A. We are doing it in our Belgium factory. First we have a sort of a trough made out of cast iron, it is about fourteen inches long and five inches wide, and we keep a temperature in there from 190 to 208 degrees. We pass our metal-foil with the gutta percha through this bath of hot water and it softens the gutta percha sufficiently to stick to the crown.

Q. 63. In other words, you are preheating the strip, rather, preheating the gutta percha on the strip, before it goes to the punches which punch out the spot?

A. That is correct.

Q. 64. And that is sufficient to cause it to stick to the cork?

A. Yes, sir, it works very well.

Q. 65. There has been a great deal of testimony here—

The Court: It sticks under pressure?

The Witness: Yes, the punches put it on the cork, and it must go through the pressure drum to cool it.

Q. 66. There has been a great deal of testimony here on the part of the defendant about certain visits of Crown Cork & Seal representatives to the Gutmann plant and conferences between officials of the plaintiff and the defendant. Did you personally ever go to the defendant's plant?

A. No.

Q. Was there any report given to you as to this so-called Cohn combined machine in which defendant had hooked an assembling machine directly to a spotting machine?

A. Yes.

Q. 68. You were informed, were you, that the defendant claimed to have a patent or some patent rights on that?

A. Yes.

Q. 69. Did you at any time give any consideration to the purchase of that patent or patent rights?

A. No.

Q. 70. Did you ever authorize anybody to make an offer for such patent rights?

A. No.

Q. 71. You certainly made none yourself?

A. No.

Q. 72. Did anyone else in the company ever give any such authorization?

A. Not to my knowledge.

Q. 73. Was it ever contemplated by the officers of the company, any such purchase?

A. No.

Q. 74. When you heard of this so-called improvement did you give it any consideration as to its value, possible value as a method?

A. No, I did not.

Q. 75. Why not?

A. Well, I thought it would be a very slow machine, and it was nothing more than we had today. I thought that the principle of that machine was involved in the one that we had.

Q. 76. Was there any particular advantage, so far as you know, as the manufacturer, in having the assembling machine [fol. 463] chine so arranged in connection with a spotting machine so that the assembled crown could go into a box to be carried over in a hopper in the spotting machine and passed directly onto the spotting mechanism?

A. I do not know any advantage at all.

Q. 77. Do you know of any disadvantages?

A. Well, you will get more bad work than you will get if you do it in two separate operations, and a much slower production.

Q. 78. At what speed do you operate your assemblers in Baltimore?

A. You mean the—

Q. 79. I am talking about a single machine now.

A. You mean the assemblers for just the cork or for the spot—

Q. 80. Just the cork.

A. Well, our machines, a single machine, has two punches, you know, that is 1100 per minute, but with a single punch it is 550 per minute.

Q. 81. How many spots do you put on with a single machine, spotting machine?

A. Put 550 per minute, that is, today.

Q. 82. In other words, by having one assembler and one spotting machine side by side, you are turning out 550 spotted crowns per minute?

A. That is per punch.

Q. 83. Per punch?

A. Yes.

Q. 84. I didn't ask you this. Did you make or lose money on your spot crown business up until 1926?

A. I lost money.

Q. 85. And what happened in 1926? Did you just stop selling them?

A. Well, during that time, it was after a lawsuit I had with the International, and I was having a lot of difficulties [fol. 464] with trying to overcome it, and then I had negotiated to buy International, which I afterwards did. And then during that particular period I was thinking of building, putting up a building in New Brunswick, New Jersey, for the New Process Cork Company, because we had outgrown our quarters in Bush Terminal. But after taking an option on the land, I couldn't see spending the amount of money. And I had already started to buy stock in the Crown Cork & Seal back in 1922, and I thought I would be better off if I would try to get control of that company and move our plant into Baltimore, which I accomplished in the early part of 1927. That was my reason for not doing any more with it.

Q. 86. Then when you went to the Crown Cork & Seal in 1927, you found they were then turning out spots by the method which is involved here?

A. Yes, they were away ahead of me.

Met pursuant to recess at 2:00 p. m.; present as before.

Mr. Warland: No cross examination.

(Witness excused.)

[fol. 465] MELCHOR MARSA, called as a witness on behalf of the plaintiff, in rebuttal, having been duly sworn, testified as follows:

Direct examination.

By Mr. Darby:

Q. 1. Where do you live?

A. In Seville, Spain.

Q. 2. And how long have you lived in Seville?

A. Approximately one year.

Q. 3. What is your occupation?

A. Assistant manager.

Q. 4. Assistant manager of what company?

A. Corchera Internationale.

Q. 5. And this Corchera Internationale is a subsidiary of the Crown Cork International Company, is it not?

A. Yes.

Q. 6. And you have returned to this country to testify in this case?

A. I returned on business plus to testify in this case.

Q. 7. What has been your experience in the crown cork manufacturing business?

A. A long one.

Q. 8. Will you please start at the beginning and give us a brief history of it?

A. In 1912 I went to work with the International Cork Company in the experimenting department to develop a composition cork.

Q. 9. What company was that?

A. The International Cork Company. I developed a composition cork and I organized a department and the International then asked me to reorganize their whole factory. Later on I became general manager and superintendent and vice-president of the company. Up to 1925 I had [fol. 466] charge of all their general managing of that firm plus the experimenting and so forth.

Q. 10. What happened in 1925?

A. We sold out to the New Process Cork Company.

Q. 11. And were you associated therefore with Mr. Alberti who has testified in this case?

A. John Alberti and James Alberti and I were 100 per cent. owners of the stock issued.

Q. 12. What are your duties now in Spain, are you connected in any way with the handling of natural cork?

A. I am general manager of the factories to make natural cork, buying the cork wood and anything that pertains to its manufacture.

Q. 13. Throughout your experience with the International Cork Company what has been your experience in natural cork in crown caps?

A. Originally we were making nothing but natural cork and later on when we developed the composition we kept on making more and more composition.

Q. 14. Why did you make more and more composition?

A. To begin with the composition was much cheaper in price to manufacture than the other and secondly we found we could get as good results practically.

Q. 15. Did natural cork cause you any trouble while you were with the International Cork Company or was it a satisfactory product?

A. Natural cork has always been a source of trouble to everybody due to the fact that you can never eliminate the pores from the disc and you can never eliminate the taste that comes from the pores of the cork wood, and is in turn imparted to the drink.

[fol. 467] Q. 16. With this composition cork you were making with the International Company, would that take the place of natural cork in every instance?

A. They would.

Q. 17. In all cases could you use composition in place of natural cork?

A. We thought we could, some customers did not want to use it.

Q. 18. Did you make any effort while with International to use spot crowns at all?

A. Yes, a big number of efforts were made.

Q. 19. Over what period of time?

A. From 1914 to 1925.

Q. 20. Why were you trying to make spot crowns?

A. Due to the fact that we always felt that a closure with cork had defects. For instance, in the bottling of ginger ale we always found that through those pores the ginger ale will penetrate in time right to the tin and we always tried to find something that never would have the cork come in contact with the beverage, and that would be the solving of the problem.

Q. 21. Was this development of spot crowns an attractive field to the International Cork Company?

A. Our feeling at that time was if we could get a thing like that we would make a killing with it.

Q. 22. I have here a patent to Alberti 1,401,300, and I will ask you to look at that patent, tell me if you know anything about the machine illustrated in it.

A. I do.

Q. 23. Were you associated in any way in the development of this machine?

A. I was in charge of it.

Q. 24. In relation to the date on the patent, the application of June 19, 1915, when did you start work approximately [fol. 468] on the development of this machine, have you any idea?

A. It might have been a couple of months before—you mean we built that machine?

Q. 25. Yes.

A. About a couple of months prior to that.

Q. 26. To what extent did you work on this machine before you got it into production. Did you get it into production?

A. We never got into production that machine and other subsequent machines that we built, it always was in an experimental stage in our machine shop.

Q. 27. Will you tell us something of the troubles you had with this and subsequent machines?

A. One of them was it was very hard to center.

Q. 28. Center what?

A. Center the tin disc into the thing, due to the fact that the albumen substance we put in there was slippery, and on centering it it always centered it one side or the other, which would leave the cork exposed to the beverage later on, that is when we have them centered that way. We had to depend on three punches to work on that material which was albumen, and naturally the machine had to run so slow that the production was very small.

Q. 29. Have you any idea at what speed you had to run the machine?

A. My recollection is between 40 and 50.

Q. 30. 40 and 50 what?

A. Revolutions per minute.

Q. 31. Does that mean 40 to 50 caps per minute?

A. Caps per minute.

Q. 32. I understand you never got that machine out of the machine shop into production?

A. Never. The longest we had it, the best we had it [fol. 469] there I think we had from 40 to 50 per cent.

approximately of rejects all the time, so there was no advantage in putting it into production under those conditions.

Q. 33. Have you any idea of how much expense the International Cork Company went to in trying to develop a satisfactory center spotting method over this period until 1925?

A. I haven't got the records with me, if I had them I could probably give the amount that was charged to that experimenting. Offhand I will say between twenty-five and thirty thousand dollars.

Q. 34. And you were never successful?

A. Never.

Mr. Darby: That is all.

Cross-examination.

By Mr. Warland:

X Q. 35. Mr. Bogdamffy was employed by the International Cork Company through 1912 and 1913, wasn't he?

A. Yes.

X Q. 36. And was Mr. Nagy employed there when you first went there?

A. He was.

X Q. 37. He left shortly after you went there, is that right?

A. A year or two after that.

X Q. 38. When did you go to work there?

A. July or August of 1912.

X Q. 39. During the Spring, in fact the Summer and Fall of 1913 International Cork Company was very busy changing its methods of manufacture, wasn't it?

A. Yes.

[fol. 470] ARTHUR VOLPE, called as a witness on behalf of the plaintiff, in rebuttal, having been duly sworn, testified as follows:

Direct examination.

By Mr. Darby:

Q. 1. Where do you reside?

A. In Baltimore.

Q. 2. Where are you employed?

A. Crown Cork & Seal Company.

Q. 3. At the plant of the plaintiff company in this case?

A. Yes, sir.

Q. 4. How long have you been employed in Baltimore by the plaintiff?

A. Since the last part of February, 1928.

The Court: In what capacity are you employed?

The Witness: Maintenance man, taking care of machines.

The Court: All right.

Q. 5. Does your work bring you in contact with center spotting machines?

A. Yes.

Q. 6. And you are familiar with center spotting machines?

A. Yes.

Q. 7. Before you went to Baltimore in the latter part of February of 1928 where were you employed?

A. The New Process Cork Company in Brooklyn, New York.

Q. 8. How long were you employed by the New Process Cork Company?

A. Since May of 1923 until the time that I went with the Crown Cork & Seal.

Q. 9. And prior to May of 1923 where were you employed?

A. The Standard Cork Company at Philadelphia.

[fol. 471] Q. 10. How long were you employed there?

A. One year.

Q. 11. And prior to the Standard Cork Company where did you work?

A. For Joseph Corren.

Q. 12. Are you acquainted with Mr. John A. Johnson who operates the A. Johnson Machine Works in Brooklyn, New York?

A. Yes.

Q. 13. When you were in Brooklyn did you see him occasionally from time to time?

A. Quite often.

Q. 14. Did you see him in Baltimore, Maryland, after you went down there?

A. I did.

Q. 15. Have you any recollection as to when you first saw him in Baltimore?

A. I seen him a short time after I went to Baltimore, somewhere around April or May.

Q. 16. Of what year?

A. 1928.

Q. 17. Will you explain the circumstances under which you saw Mr. Johnson?

A. I was walking through the floor on some business and I seen Mr. Johnson and Mr. McManus coming through the floor and by the time that I came up with them Mr. McManus has left Mr. Johnson and I greeted Johnson and I had a chat with him and went along about my business.

Q. 18. In what factory was this?

A. The Crown Cork & Seal.

Q. 19. In what part of the factory?

A. In the spot department.

Q. 20. Have you any recollection as to how many spot machines the Crown Cork & Seal Company had in operation at that time?

A. I would say about 12 or 14.

Q. 21. When you were with the New Process Company in Brooklyn, New York, were they making center spot [fol. 472] crowns?

A. We made some, yes, sir.

Q. 22. What was the center spot, what material?

A. Tin, tin-foil.

Q. 23. How was that tin-foil attached to the cork?

A. It was backed up with paper and then had an adhesive underneath. They would drop some liquid on the cork part of the crown and then we would cut the spot on there and run it through the drier and it would stick.

Q. 24. Did your work bring you in any way in a position to observe the operation of the machines that were making these spots?

A. Yes, sir, at that time I had charge of that department.

Q. 25. What is your knowledge with respect to the efficiency of the machine?

A. It was very poor.

Q. 26. What do you mean by poor, what was the trouble?

A. I do not think that it paid us to operate that way.

Q. 27. What do you mean it did not pay you?

A. The production was very slow and a lot of them went off centers.

Q. 28. What do you mean by slow?

A. In the first place we would run about 50 a minute and out of that a good many were discarded, picked out on account of spots going off center, shifting to one side.

Q. 29. Were any efforts made while you were with the New Process Company to perfect this machine and method?

A. No, it seemed after a time, I should say about 1926 we seemed to stop completely on it and did not make any more of them.

Q. 30. Before 1926 did you do anything to try and over- [fol. 473] come these difficulties?

A. No, we tried our best to operate that machine that way but we could not seem to make it go very well.

Q. 31. Did you have any mechanics working on the machine?

A. Well, I am a mechanic myself by trade and I had other assistants helping there.

Q. 32. Did you work on the machine and try to make it work better?

A. I did, personally.

Cross-examination.

By Mr. Warland:

X Q. 33. You say you worked in the plant of the Crown Cork & Seal Company in Baltimore?

A. I did.

X Q. 34. Which plant were you in?

A. The assembly department.

X Q. 35. Don't they have a lot of factories and buildings down there?

A. They do.

X Q. 36. What building were you in?

A. In the main building I would call it.

X Q. 37. That is where the assembling machines are?

A. Yes.

X Q. 38. You say you saw Mr. Johnson there on April or May of 1928?

A. I did.

X Q. 39. And did you talk to him?

A. Yes.

X Q. 40. What was he doing, trying to sell machines?

A. I don't know.

X Q. 41. How do you know it was in 1928 that you saw him?

A. Because that is the time I went there.

X Q. 42. When did you go there?

A. 1928.

X Q. 43. You had been there how long before you saw Johnson?

A. It was a short time

X Q. 44. What do you call a short time?

A. It might have been a month or month and a half.

X Q. 45. Do you remember what month you went there?
[fol. 474] A. Either February or the first part of March.

X Q. 46. Which was it, February or March?

A. I cannot say exactly but I think it was February, the last part.

X Q. 47. You cannot say exactly whether you saw Johnson in April or May, can you?

A. I seen him in that time.

X Q. 48. How do you know it was April or how do you know it was May, which was it?

A. I did not know anything like this was coming along and I did not take no date.

X Q. 49. You made no memorandum at the time at all?

A. No.

X Q. 50. And you have no written memorandum to refresh your recollection?

A. No, but I am positive that I saw him there.

X Q. 51. That is your memory, isn't it?

A. It is not memory, I am sure of it.

X Q. 52. What was your position with the New Process Cork Company?

A. I had charge of taking care of the machines, of production.

X Q. 53. What do you mean by taking charge of the machines, what did you do?

A. If a machine were out of order we seen to it that they were attended to.

X Q. 54. You were just employed as a regular mechanic to see that the parts of the machine worked properly?

A. Maintenance man, that is it.

X Q. 55. You had nothing to do with making new parts or the improvement on old parts?

A. No.

X Q. 56. You say you saw some caps made at the New Process?

A. Yes.

X Q. 57. The only kind you saw were the tin centers, is that right?

A. Yes, sir.

[fol. 475] X Q. 58. When did you first go to work with the New Process?

A. In 1923.

Redirect examination.

By Mr. Scull:

R. D. Q. 59. You say you worked in 1928 when you first went down to the Crown Cork & Seal Company in the assembly department?

A. Yes, sir.

R. D. Q. 60. That is the department where the machines are for putting the cork disc into the crown?

A. Exactly.

R. D. Q. 61. Just where was that department in relation to the spotting machine department, how far is the spotting machine department from the assembly machine department?

A. At that time it was no more than about 25 feet, 25 or 30 feet.

R. D. Q. 62. On the same floor?

A. On the same floor.

BERTALIN SZAVO, called as a witness on behalf of the plaintiff, in rebuttal, having been duly sworn, testified as follows:

Direct examination.

By Mr. Darby:

Q. 1. Where do you reside, Mr. Szavo, where do you live?

A. I live in Maryland, in Baltimore.

Q. 2. You are employed by the Crown Cork & Seal Company at its Baltimore plant?

A. Yes, ma'am.

Q. 3. What are your duties there?

A. I carry assembling department, crown department.

Q. 4. In the crown assembling department?

A. Crown assembling department.

[fol. 476] Q. 5. How long have you worked in Baltimore at the plant of the Crown Cork & Seal Company?

A. I work 1928 to—

Q. 6. To now?

A. To now. By January 12 to now, I go down to Baltimore in 1928, January 12, up to now.

Q. 7. You say you went there in January, 1928?

A. Yes.

Q. 8. Before you went to Baltimore, where did you work?

A. I work at New Process Company.

Q. 9. Where was the New Process Cork Company located?

A. It is Brooklyn, 35th Street.

Q. 10. How long did you work at the New Process Cork Company?

A. I work from 1921, September in 1921, to 1928, up to the time when I left to go to Baltimore.

Q. 11. From 1921 to 1928 in the New Process Cork Company?

A. Yes.

Q. 12. Before you went to the New Process Cork Company in 1921, where did you work?

A. I work Ferdinand Gutmann Crown Company.

Q. 13. In Brooklyn, New York?

A. In Brooklyn, New York.

Q. 14. Now, while you were with the Ferdinand Gutmann Company, did you do any work in connection with center spot crowns?

A. Yes, sir.

Mr. Warland: I object to that. We haven't given any evidence prior to 1924.

Mr. Darby: This is contradictory of your testimony.

Q. 15. Just what did you do at the plant of the Ferdinand Gutmann Company?

A. I did the same thing what I do now, carried assembling machine.

Q. 16. What did you do in connection with center spot crowns, explain it briefly?

[fol. 477] A. Well, 1920, when business was very slow and we had not much to do, by summer time a couple of weeks I got an order from the foreman, Mr. Rasmussen, to try and make center spot, that I try, I do it on one machine for assembling department in the machine shop, and we will try it on one machine to make it into a spot. I used then for bakelite or ordinary paper like newspaper ribbon. We put it on and we try and coat it, and stick it in in some way.

Q. 17. What did you use to try to stick it on the cork?

A. First of all we try what is called silicate of soda look like.

Q. 18. How do you know it is silicate of soda?

A. Because it has got it on the bottle, and I know what it is long time ago because I seen that before.

Q. 19. Had you ever worked with silicate of soda before that?

A. I never worked at it, I see it and I know what purpose it is used for, sticking.

Q. 20. What did you do with the silicate of soda, where did you put it?

A. I try putting them up for a paper.

Q. 21. Put the silicate of soda on the paper?

A. Like smearing it on, and I find it dried out and come out dusty after.

Q. 22. How did you get this silicate of soda wet to make it stick?

A. Well, I try it on a piece of rag, I wet it, I don't ask nobody, and when it get cold it don't stick, it get dusty after while.

Q. 23. You wet the paper with a rag?

A. I wet the paper with a rag.

Q. 24. Well, how long did you try to make these center spot crowns?

A. I think about six or seven weeks, I don't know exactly.

[fol. 478] Q. 25. Did you have any success?

A. No.

Q. 26. Well, now, who told you to start this work?

A. Well, the machine shop foreman who had charge of the whole department.

Q. 27. And who told you how to do it?

A. Mr. Rasmussen; he is my boss.

Q. 28. And you went on for a few weeks and then what happened?

A. We stopped off. Sometime he would give me some other job.

Q. 29. Who told you to stop?

A. Mr. Rasmussen gives me another job, and we will never do no more, we stopped it.

Q. 30. And that was the end of the experiment?

A. That was the end of the experiment.

Cross-examination.

By Mr. Warland:

X Q. 31. Did you ever take out any patents yourself for any inventions you made?

A. Yes, I invented them.

X Q. 32. What did you invent and take out a patent on?

A. A feed for cork for assembling machinery.

X Q. 33. When was it you say you saw Gutmann try to make center spots?

A. 1920.

X Q. 34. Where were you working then. At Gutmann's?

A. Yes.

X Q. 35. Where had you been working?

A. International Crown Cork Company.

X Q. 36. Then, did you work for the New Process?

A. After I worked for the New Process.

X Q. 37. What was the New Process making at that time—was the New Process making any center spot crowns when you were with them?

A. Yes.

X Q. 38. When did you go to work for the New Process?

A. Well, I cannot hear so very good.

[fol. 479] X Q. 39. I say, when did you go to work for the New Process Company, what date?

A. What date I go to work?

X Q. 40. Yes, for the New Process.

A. September of 1921.

X Q. 41. How are you sure that it was 1921?

A. How am I sure?

X Q. 42. Yes.

A. Because I know the date when I go to start there.

X Q. 43. Why did you leave the Gutmann Company?

A. Well, I go and leave the place because I am trying myself to make a better position.

X Q. 44. Did you get a better position with the New Process than you had with Gutmann?

A. I just changed.

X Q. 45. Did you get any more money with the New Process than you did with Gutmann?

A. About the same.

X Q. 46. Did you have any trouble with Gutmann, that you left?

A. No.

X Q. 47. Gutmann were not selling any center spots in 1921, when you were there, were they?

A. No.

X Q. 48. All you know is that you saw Mr. Rasmussen trying to experiment to make a few?

A. Yes, ma'am.

X Q. 49. And you don't know what he stuck them on with?

A. No, ma'am.

X Q. 50. Do you know what kind of a machine he used?

A. A regular old style Johnson machine with a feed paper attachment.

X Q. 51. And you are now working for the Crown Cork & Seal Company?

A. Yes.

X Q. 52. Who did you talk with before you came here as a witness? Did you talk with Mr. Darby?

A. Yes, ma'am.

[fol. 480] X Q. 53. What did he say about dates, anything about 1921?

A. He did not say nothing about it, I know that. When I left Mr. Gutmann's place, I know when I left positive and everything. I remember that pretty good.

X Q. 54. When you say Mr. Rasmussen was trying to put center spots on, how was he trying?

A. He was trying to put on the middle of the cork, but it never came out, it would go to one side or the other.

X Q. 55. He just wanted to see if center spots could be made, is that right?

A. Yes, that is right.

X Q. 56. And he worked on this how long, according to your recollection, was it a week or two?

A. I think I worked about six or seven weeks; I am not sure about it.

X Q. 57. You are not very sure about anything?

A. About six or seven weeks.

X Q. 58. But I say, you are not very sure about anything?

A. No.

GEORGE GOEBEL, called as a witness on behalf of the plaintiff, in rebuttal, having been duly sworn, testified as follows:

Direct examination.

By Mr. Darby:

Q. 1. Where do you reside?

A. Baltimore, Maryland.

Q. 2. Where are you employed?

A. Crown Cork & Seal, Baltimore.

Q. 3. How long have you been employed by the Crown Cork & Seal Company and its predecessor in business?

A. Since 1914, July.

[fol. 481] Q. 4. What are your duties with the Crown Cork & Seal Company?

A. Building engineer on all production machinery, building and acquisition and also maintenance of production machines.

Q. 5. In other words, you are employed in an engineering capacity?

A. Yes, sir.

Q. 6. Will you please give us briefly a history of your experience?

A. I left school at the age of twenty-two in 1902, Berlin, where I studied engineering. I came to the United States in 1904, took a position with the Comptograph Adding Machine Company in Chicago as tool draftsman and some more drawing work for I guess about two years. Thereafter I came with the Cord Manufacturing Company, located in Chicago at that time, as tool designer and in general charge of the tool department, to assist the superintendent. Thereafter I became general superintendent for Diamonds Manufacturing Company in Detroit, manufacturing automobile parts. In 1914 I took a position with the Crown Cork & Seal Company as engineer building machinery, maintaining, as supervisor of production of equipment, that was the title then.

Q. 7. To what extent has your work with the Crown Cork & Seal Company since 1915 brought you in contact with the manufacture of center spot crowns?

A. I have been brought in contact, constant contact with it, from early 1915.

Q. 8. Are you quite familiar with the machinery that has been employed by the Crown Cork & Seal Company for

the manufacture of center spot crowns since that time to the present time?

A. I am.

Q. 9. By the way, did you have any knowledge of any [fol. 482] machinery that came to the Crown Cork & Seal Company within the last few years from a company known as the Crown Cap Manufacturing Company of Brooklyn?

A. There is a machine that came to Baltimore, a Johnson crown assembling machine, so equipped that you can run spots on it also, it is a duplex machine.

Q. 10. Did you personally see that machine?

A. I saw the machine.

Q. 11. Has that machine ever been used by the Crown Cork & Seal Company?

A. No, it has not.

Q. 12. When you first went with the Crown Cork & Seal Company was it manufacturing center spot crowns?

A. No.

Q. 13. How long after you went there, approximately, did they begin the manufacture of center spot crowns?

A. In 1915 we entertained the idea of building a machine to apply center spots to crowns. That was probably in the fall of 1915, if I do not mistake.

Q. 14. Had you seen any center spot crowns on the market at that time, or were any called to your attention?

A. Yes, the tuck-in type, that is, such as made on the Stewart machine.

Q. 15. Did you have anything to do with the problem of getting the Crown Cork & Seal Company started with the manufacture of center spot crowns?

A. Yes, the problem was put up to me.

Q. 16. Just what did you do?

A. We put our draftsman to work. I sketched up the principle first, that is, the principle we had in mind at that time, to apply center spots.

Q. 17. How long a period of experimentation did it take to get started around that time?

A. Well, I couldn't remember just how long it took to experiment, but I could tell you just what happened in the building of machines.

Q. 18. Go right ahead in your own way.

A. We established a fundamental on which to build the machine which was to pull a web, that is the two separate

strips of course loosely united, over a punch and die underneath that die was located a movable slide. This slide had a pocket about the diameter of the spot, slightly larger and when this disc was punched it was dropped into that pocket. Now then, at that moment the slide would withdraw back to its original position and in alignment with a heated suction punch. The disc would then be lifted by suction on to this heated punch and the gutta percha would soften and then it would come down and deposit that soft disc on to the shell which was located underneath.

Q. 19. And how did you come to start the use of gutta percha, do you know who suggested that?

A. Well, it was a matter of collaboration between the chemical laboratory and myself. We obtained some gutta percha and tried it and we found that it was the best way to control the adhesive, by having the tissue and cutting it of the same diameter. Before that we tried also some other adhesives but not extensively.

Q. 20. With whom did you work in the chemical laboratory?

A. At that time it was a Mr. Daly the chemist and shortly thereafter it was Warth.

Q. 21. Now, you made this drawing for me or you explained how the draftsman should make it. Will you take this drawing and just explain the sequence of steps in the operation of that machine which you say was developed under your supervision?

[fol. 484] A. Well, this represents the aluminum foil, that blue strip, and this is gutta percha (indicating) and they were fed by two sets of feed rolls, to the die. This is the die (indicating). Underneath there is a grey portion, that is the slide which has a pocket underneath and this disc is punched and dropped into that pocket (indicating). There was a small knockout there to keep it away from that space, but that is not shown on here; it was too small.

Now, in this next step, this slide was moved to a position alongside of the cutting punch where there is a heated suction punch and with the heat supplied by electricity and at that point suction was applied, which was done by a piston mounted on the crankshaft of the machine itself. That would suck the disc up against here (indicating) and this slide would withdraw—here is the suction that shows the disc, Fig. 3 (indicating) in a position to be heated.

Now, at 4, Fig. 4, this slide shows the original position with that pocket again in alignment with this cutting punch to receive another disc. While the heated punch went down to deposit that disc simultaneously when the cutting punch punched it into the pocket.

5 shows the application of the disc into the shell. As soon as the disc was delivered on to the cushion disc, the pressure was released. That release was due to a port of air which rushed in and the disc adhered to the cork and here, at No. 6, it shows the discharge to the chute down to the basket or box.

Mr. Darby: I offer in evidence the chart which has been described by the witness.

(Marked Plaintiff's Exhibit 43 in evidence.)

[fol. 485]. Q. 22. Now, as I understand your description, after the slide moves to the position shown in Fig. 2 the suction lifts the two layers of gutta percha and foil up against this suction plunger and heats the two discs while the slide is withdrawing, is that correct?

A. That is correct.

Q. 23. Then in Fig. 6, after the two discs are dropped on to the cork they are immediately ejected?

A. Immediately ejected, that is right.

Q. 24. Now, who designed this machine?

A. It was designed under my supervision.

Q. 25. I hand you a memorandum and two attached photographs; will you please read the memorandum and state whether or not you recognize the same?

A. That is a memorandum from the engineering department signed by W. F. Walker who was at that time chief draftsman or assistant chief draftsman.

Q. 26. Will you please read it and state whether what it describes is accurate?

A. "The following is a treatise"—

Q. 27. I do not mean read it aloud, will you please read it for your own benefit?

A. Oh. (Reading paper.) That is correct.

Q. 28. Will you look at the photographs and state what they show?

A. That is the machine, identical machine that is in question right now.

Q. 29. Those photographs illustrate the machine which you began to use, and on which you manufactured center spot crowns for some time in the manner you have described?

A. Yes, sir, that is the machine.

Q. 30. And these are like Exhibit 43, these photographs?

A. The principle, yes.

Mr. Darby: I offer in evidence the memorandum identified by the witness as Plaintiff's Exhibit 44.

[fol. 486] (Marked Plaintiff's Exhibit 44 in evidence.)

Mr. Darby: The photographs as Plaintiff's Exhibit 45.

(Marked Plaintiff's Exhibit 45 in evidence.)

Q. 31. Do you recall how many of these machines of Exhibits 44 and 45 you built and used?

A. Yes, three.

Q. 32. Roughly, how long did you use them, without any particular reference to dates?

A. We used them for a number of years until we built something better.

Q. 33. During the period of use of these machines to what extent were you personally familiar with their operation and the service they were giving?

A. I was in constant attention with the machines, because they gave us a great deal of trouble, that is, they were slow.

Q. 34. I believe you told me these were known as the slide machines.

A. Known as the slide machines, yes.

Q. 35. They take that name from this movable slide that moved back and forth?

A. That movable slide, yes.

Q. 36. So you were perfectly familiar with the operation and service of these slide machines during the period they were in use?

A. Yes, I surely am.

Q. 37. What is your personal knowledge in that respect?

A. Naturally when I build a piece of machinery it is up to me to get it going; we always have to do that, take out the bugs, and this machine was no exception, I had to do the same thing on that. And the difficulties were that the disc did not always fall centrally in that slide, the pocket had [fol. 487] to be slightly larger than the disc, and it would fall one way or the other. It would pick up the crown from

the heating punch and deposit it off center on to the cushioned disc, and that of course while it was still warm, so we had a couple of girls sitting there to take the spots with their thumb and place them over in the middle. That naturally would retard production and was not very satisfactory.

Q. 38. With respect to this operation of stuffing the piece of foil and piece of gutta percha out of the pocket on to the heating punch to be heated, did this operation cause any trouble?

A. Well, as I said it may not always pick it up in alignment with the punch. The machine was not a crank motion, I forgot to mention that, it was a cam motion, that is, there was a dwell when the punch was up and a dwell when the punch was down.

Q. 39. You had the punch up to give it time to heat the spot?

A. To give it time for the slide to get in position, and also get the suction to apply. And then the slide had to get out of the way before the punch went down. And the lower dwell was designed to have a slight rest. In order to deposit the disc and release the pressure, release the suction.

Q. 40. Have you any recollection as to the production you were able to get out of this machine over the period of use that it was in, the slide machine?

A. I know it wasn't very high. I am not, I can't just recollect the exact figures, you might get them out of the records that I am sure of, but it was not very high. It was probably about 50, the machine operated about 50 or 60 strokes a minute, I believe, something like that.

[fol. 488] Q. 41. How many spots would that mean applied in a minute?

A. That would probably be 50 or 60 spots a minute, something like that.

Q. 42. You never got any better out of these machines?

A. That is about all we got out of them.

Q. 43. Those were improved over this period of use, were they?

A. Yes, we did constantly work on them, and we made such improvements, and we continued experiments and improved them, but they were never entirely satisfactory I would say.

Q. 44. You spoke of working on it. Was there any particular expense in the maintenance of the machine?

A. Yes, the electrical heater went up quite often. The sliding movement gave us some trouble with maintenance. There was some maintenance connected with it, yes.

Q. 45. Now, I believe you said that some time later you did get something better, is that right?

A. Yes.

Q. 46. When you got this better machine just how much better was it?

A. The experiments indicated that it was quite a decided improvement; just to say in percentage I don't know, but I might say maybe two or three hundred per cent. better.

Q. 47. You stepped the speed up to what extent?

A. In the first experimental unit to about 250, I believe, or 275, which we gradually increased as we improved the machine.

Q. 48. Right at the start you jumped it up to 250?

A. Yes.

Q. 49. How much did you step it up to later?

A. The ultimate speed, that is, after we combined the two [fol. 489] materials, it was rather high, probably around 420, or something like that.

Q. 50. I hand you two photographs, Plaintiff's Exhibits 41 and 42. Will you state what they show?


A. They show the machine as it was used after the machine of the slide method. The machine itself I would say, the running gears and the bed and the dowels was one of our assembling machines, that is, a machine used at that time for assembling crown corks. We used a good many drawings of that machine to experiment on this spot machine?

Q. 51. How did you come to design this machine?

A. Which one, the spot machine or the assembling machine?

Q. 52. The one the photographs of which you have in your hand, and which you say succeeded the sliding machine?

A. Why, Dr. Warth furnished us with the idea. Of course, we were dissatisfied with what the old machine did, and he said, "You should apply heat to that cork when you deliver the spot, and perhaps afterwards another heater again, and work along that line and you will probably get somewhere," which we did.



Q. 53. Am I to understand what you did was the result of what Dr. Warth told you in the way of what he wanted?

A. That is what he told me.

Q. 54. Take these photographs and compare them with this machine which we have here (indicating) and state whether or not they illustrate the same?

A. Yes.

Q. 55. Will you please describe the machine and its mode of operation so far as it is embodied in this exhibit we have here?

[fol. 490] A. To give you a clear picture, this is just an improvised piece of steel on which the mechanism is mounted. The machine itself was much higher and had a hopper, and then had a large dial on this side here for cooling under pressure.

Q. 56. How much does the complete machine weigh?

A. About 3500 pounds. It is quite a heavy machine; on account of the speed it has to be heavy.

Q. 57. Now, go ahead and explain this.

A. Now, the shells were brought up by a hopper feed into this curved chute (indicating). They were taken away by a double set of finger movements. There is a heater here which imparts a certain amount of heat on to the cushion disc, but it goes underneath here. After that heat is imparted.

Q. 58. What is this piece of mechanism that applies the heat?

A. It is a gas heater that reciprocates and is operated by this yoke in here, attached on to this. (Indicating.) It is heated by gas. The earlier machines were heated by electricity. Now, the material is fed through here (indicating) to this channel.

Q. 59. The spot material—

A. Both the gutta percha and the tin-foil, they are put in through here (indicating), and are punched and fed through here, to this feed, and they are released here. (Indicating.) The crown, after the disc was applied, was fed further along to the post heater, and also heated by gas to impart more heat to the foil, and then into the dial where it cools under pressure, and was delivered to a conveyor belt where the girls pick out the imperfect crowns.

Q. 60. How close was this dial to the post heater in the [fol. 491] first machine?

A. Right here; you can see this bright spot (indicating), and on this bright spot, that is where the dial travels, so it is the distance from here to here (indicating), possibly seven or eight stations.

Q. 61. This dial shown at the left hand of the photograph, Plaintiff's Exhibit 41, is that what you mean?

A. Yes. Of course, this dial is large and has 96 plungers and was originally used in the crown assembling machine, but I did not want to make any change, or more changes than we had to, and so we kept the big dial on there so as to have a complete machine.

Q. 62. You say the first machines were electrically heated, but in any other respect did they differ from this machine so far as the operating mechanism is concerned?

A. They are identical, except that we had two ways of heating those cushion discs. In this case here we have a plunger to heat the cushion or waxed cork, the cork being waxed. We had to raise that often as the gutta percha stuck. We also used a long inverted high pressure gas heater that extended from here to here (indicating).

Q. 63. Just a hood?

A. Just a strip over here, yes.

Q. 64. A hood?

A. A hood.

Q. 65. So in some of the machines you preheated by plunger, and in other machines you preheated by the hood?

A. Yes, it would not stick to the wax cork.

Q. 66. You stated it would not stick to the waxed cork?

A. No, we had to do away with the wax or else it would not stick.

Mr. Darby: I offer the machine in evidence identified by the witness.

[fol. 492] Mr. Warland: I object to this machine, if the Court please, on the ground that it has no bearing on the controversy.

Mr. Darby: We are going to show when they started this; it will be identified with later witnesses.

The Court: I cannot tell what he is going to do; he says he is going to connect it up. If he does not connect it up, I won't pay any attention to it.

(Marked Plaintiff's Exhibit 46 in evidence.)

Q. 67. By the way, do you know Mr. John A. Johnson of the John A. Johnson Machine Works?

A. I do.

Q. 68. Brooklyn, New York?

A. I do.

Q. 69. How long have you known him?

A. The first time I met Mr. Johnson was in around, I should say early 1918 or so, 19—I forget on what occasion it was; it might have been at a convention, I think that is what it was, one of the bottler's conventions.

Q. 70. You heard the testimony this morning, I believe, of Mr. McManus and Mr. Volpe?

A. I have.

Q. 71. Are you familiar in any way with the circumstances with respect to which they testified?

A. Yes.

Q. 72. About Mr. Johnson's visit to your plant?

A. Yes. I think I was at my desk when a department foreman came up to me, the foreman of the crown assembly department, and told me that there was a strange man downstairs looking over those spot machines. "Is that so?" "Yes." I said, "How did he get in?" "Why," [fol. 493] he said, "Mr. McManus brought him there, and he left him there, and now he is nosing around those spot machines." "Oh, well, if Mr. McManus brought him in, there isn't anything I can do, just be sure you remember what you saw; that is about all."

Q. 73. What I meant, did you meet Mr. Johnson at that time?

A. No, I did not. I saw him, I did not meet him. What I meant to say was, I did not speak to him, but I did see him later on, I believe it was with Mr. McManus.

Q. 74. Did you see him while he was in the spot assembly department?

A. No, I did not.

Q. 75. What time was this, have you any way of fixing the date?

A. From, it being a remarkable incident, naturally you make a pretty sharp me-tal memorandum, and that is what I did at that time. That was in 1928, I think it was in March or early in April, I do not recollect the date.

Q. 76. You simply mean that Mr. Johnson was down there around that time?

A. Yes, sir.

Q. 77. When you first built these electrical machines you say that preceded the gas machine, what results did you obtain first in the way of speed?

A. I believe the first speed that we obtained was around 275, something like that. It might have been a little bit better, might be a little bit less, I do not recollect, but it was quite an improvement over what we had before.

Q. 78. Now, have you checked your records to find the early drawings you have available at this time of your machines, that is, the new machines that succeeded the slide machines?

A. Yes, we have looked over the records.

Q. 79. I hand you a number of blueprints. Will you [fol. 494] please examine the same and state what they cover?

A. Yes.

Q. 80. Take them up one by one, there are only a few there, aren't there? Identify them by number.

A. Now, as I said before, the machine was built using a crown assembling machine known as a Goebel crown assembler as a base, and these drawings represent merely the changes we had to make to obtain this mechanism. We have not got the drawings here, but the machine itself, the assembling machine, there is a large dial and legs, and these drawings represent the mechanism that it was necessary to alter.

Q. 81. Now, what particular part of the spot mechanism does that group of drawings I have handed you relate to?

A. It relates to the spotting attachment itself.

Q. 82. To what part of the spotting attachment do that group of drawings relate, look them over.

A. Well, the main bracket for instance which had to be changed and made new—

Q. 83. What drawing number is that?

A. That is drawing No. 72,151 which shows a cast-iron bracket whereon that whole mechanism is fastened to.

Q. 84. What is the date of that drawing?

A. That date is October 4, 1926.

Q. 85. Do you know whether or not the drawing was made at or about that time?

A. The drawing was finished at that time when it was dated but the parts were made earlier. I mean to say the

experimental machine was made practically without drawings at all, just freehand sketches.

Q. 86. This is when you standardized on the commercial machine?

A. Yes, we do not make these drawings, not until we knew [fol. 495] we were going to make no more changes.

Q. 87. Will you look at the other drawings and state generally to what parts of the spot attachments they relate and identify them by number.

A. Well, I have here drawing 72,154 which is an eccentric and that was necessary in order to get a greater stroke on the cutting punch. The eccentric used on that same spot, but did not have to have that excessive stroke.

Q. 88. What is the date?

A. That is also 1926, December 1st, 1926. These are all record drawings, I mean drawings made after the experiment was completed.

Here is a drawing which is also one of the principal parts of the spot attachment.

Q. 89. The number please?

A. 72,155.

Q. 90. And the date?

A. November 13, 1926. This drawing shows the cutter head which is a self-contained mechanism, interchangeable, which holds the cutting punch at the cutting die. I might say it is a suppressed die. That drawing was redrawn with changes. That happens. When we make a change later on, if it is too much of a job to rub it out, we used to make a new drawing and then we will take the old drawing and mark it superseded, but we never throw it away, we keep it. There is an example right here.

Here is another one, that is a very important part on the machine.

Q. 91. What is the number, please?

A. 72,161.

Q. 92. And the date?

A. November 8, 1926. It is a centralizer. That is the mechanism operated by the cutting punch mechanism, a lowering circular bushing into the shell to centralize it so [fol. 496] the spot would be received in the middle. This was also superseded and it has a "superseded" stamp on it and a new drawing was made with probably important changes on it.

Now, we have here a drawing—

Q. 93. Number please?

A. 72,168 which is the operating yoke for that centralizer.

Q. 94. And you put another one down there. What is the number of that?

A. This is 72,162, it is a guide block for that centralizer, the strip guide we call it.

Q. 95. Explain that please.

A. Here is drawing 72,219 which is a punch operating yoke assembly.

Q. 96. What is the date of that?

A. November, 1926. This mechanism which is hooked on to the punch on the top and eccentric yoke on the bottom, inside of the machine.

Here is drawing No. 72,216 "Feed operating lever lower." This is the lever that is used in connection with moving the web or foil over the die and operates a ratchet.

Q. 97. Will you just examine the rest of the drawings you have there and state whether or not they all relate to the spotting mechanism?

A. I have seen all this because I prepared them.

Q. 98. You grouped these drawings as they are there, in that envelope?

A. Yes, sir, absolutely.

Q. 99. Will you return them to the envelope, please.

A. Yes. (Witness complies.)

Mr. Darby: I offer this group of blueprints identified by the witness in evidence, 11 blueprints in all.

Mr. Warland: I make the same objection, your Honor, that they are incompetent, irrelevant and immaterial to [fol. 497] the issues here.

Mr. Darby: These blueprints are offered, your Honor, to establish our record date for records in our plant. The first drawing I think we have of our machine, and it is important that we establish our dates.

The Court: All right, I will take it.

(Marked Plaintiff's Exhibit 47 in evidence.)

Q. 100. I hand you another group of drawings numbered 72,275, 72,172, 72,173, 72,160 and 72,157. Will you please examine them and see whether they are typical drawings of the preheater mechanism on the same machine, and that the drawings were made on the dates given thereon?

A. Yes, they are all relating to the preheating parts.

There is two different kinds, one for the strip, the other one is the round spot heater.

Mr. Darby: I offer the drawings identified by the witness in evidence.

Mr. Warland: I make the same objection.

The Court: The same ruling. They are received.

(Marked Plaintiff's Exhibit 48 in evidence.)

Q. 101. Referring to this drawing 72,275, Plaintiff's Exhibit 48, does that indicate the hood type of preheater to which you referred?

A. It does.

Q. 102. The other drawings show the plunger type of preheater that is on the machine you have identified?

A. Yes.

Q. 103. I hand you another group of drawings, 72,158, [fol. 498] 72,184 and 72,211. State whether or not those are drawings with reference to the post heater of the plunger following the punch?

A. This is what we call the sealing heater. I may add that on the assembling machine which we have used to create this machine, there is a mechanism on there which we call a bumper. Now, that bumper was placed on there to break down the knots in natural cork discs after they were inserted, we had the mechanism on there, the up-and-down movement, and all we had to do for installing the heaters was to put a hose on there and operate the same way, and we had a sealing heater.

Q. 104. That is the reason you had only a few drawings?

A. We had only a few drawings because all the rest of the parts are already on the machine.

Q. 105. These drawings which you have identified were made on the dates given on the drawings?

A. Oh, yes, they were, at the time they were drawn up; that is usually our system, to state them, put the man's name, the man's initials on there that does it, and the date that he does it.

Mr. Darby: I offer in evidence the drawings just identified by the witness.

Mr. Warland: I make the same objection.

The Court: I will receive them. He says he is going to connect them up.

(Marked Plaintiff's Exhibit 49 in evidence.)

Q. 106. I hand you what is known as a request and authorization for an appropriation. Will you state what you [fol. 499] can as to that?

A. Appropriation 91,036, to cover money available for three aluminum spot to be applied to crown assembling machines as per blueprints.

Q. 107. Please take the original instead of that.

A. They are both identical.

Q. 108. You had a photostatic copy in your hand.

A. Under explanation it says, "We have three assembling machines equipped at present. The above will give us a total of six that are necessary for the Anheuser-Busch trade." It is signed by myself.

Q. 109. Do you have any recollection with reference to this particular appropriation, the one you have just read?

A. Yes.

Q. 110. Just state what your recollection is.

A. My recollection is that we received a serious complaint from the Anheuser-Busch people on account of a corky taste.

Q. 111. That was from natural cork crowns?

A. Natural cork, yes, and as a result of that Dr. Warth and myself, we were asked to come down to St. Louis to see what can be done to eliminate that corky taste, which was especially bad in cereal beverages because near-beer is very sensitive. We had a meeting with Mr. Adolphus Busch, his two sons and Mr. Anheuser, and Mr. Augustus Busch, and he says, "Why don't you people buy your cork the way that I buy my hops, over in Bavaria and Austria, and go to Spain and pick out your cork very carefully over there, pick out your cork fields?" And Dr. Warth explained to him that cork doesn't grow that way, that it comes in any old way and it has to be assorted thereafter. Then Dr. Warth—

Q. 112. Without going too much into the details of this [fol. 500] conversation, tell us what related to this incident?

A. Well, we finally sold him the idea to spot his crowns with a metal spot.

Q. 113. That is, crowns he already had?

A. He had three carloads down there, and we had two carloads in the plant.

Q. 114. Anheuser-Busch was using quite a volume of natural cork crowns then in 1926?

A. They did not use such an awful lot, but they did use quite a number.

Q. 115. You had a five-carload order at that time, did you not?

A. Five-carloads were on hand, yes, three there and two at our plant.

Q. 116. That is how many corks?

A. 30,000 gross to a carload.

Q. 117. That is 150,000 gross of crowns?

A. 150,000 gross of crowns.

Q. 118. So that was this appropriation you have identified, did that relate to that incident?

A. That related to that incident. We felt we ought to build at least three more machines to take care of this demand. We should have really six more at that time, but you can build three machines much faster than you can build six, and I figured if we built three and got them going we could keep on adding to them.

Q. 119. Now, did you go ahead and build machines that were covered by this appropriation?

A. They were built, yes.

Mr. Darby: I offer in evidence the appropriation record identified by the witness.

(Marked Plaintiff's Exhibit 50 in evidence.)

[fol. 501] Q. 120. Now, I note on this appropriation it states, "We have three re-assembling machines equipped at present which will give us a total of six that were necessary for the Anheuser-Busch trade." What was the construction of those three machines that were in use at that time, to which that appropriation refers?

A. They were identical to what you had over here (indicating) except they were heated by electricity.

Q. 121. You are referring now to the machine Exhibit 46 of which Exhibits 41 and 42 are photographs?

A. Yes, sir.

Q. 122. Now, how long, roughly, so far as you can recall from your own recollection had those three machines been in use which are referred to in this appropriation and state what your recollection is?

A. I have never made it a practice to remember dates because I cannot possibly do it.

Q. 123. Had they been used for some time?

A. They had been used for some time, but the records somewhere ought to show when they were made and when they were put into the works.

Q. 124. I hand you a paper dated April 15, 1925, and I refer you to page 3 at the bottom of the page under the heading, "Obsolete and surplus in idle machinery and equipment," and particularly to the last line, "Three tin-foil machines—scrapped." Do you know what that refers to?

A. Yes.

Q. 125. What are they please?

A. Those are those three slide machines which were described earlier—a little while ago. April 15, 1925, those were the three slide machines.

Q. 126. Do you know whether or not they were scrapped [fol. 502] on or about the time of April 15, 1925?

A. Yes.

Mr. Darby: I offer the paper identified by the witness in evidence.

(Marked Plaintiff's Exhibit 51 in evidence.)

Q. 127. Now, up to the time that you went out to the Anheuser-Busch Company, how were you feeding this strip material through these three machines, the earlier machines, the ones referred to in the appropriation, Plaintiff's Exhibit 50?

A. We fed them as two separate webs, brought them together just shortly before the die came down.

Q. 128. Between these rollers shown in the machine, Exhibit 46?

A. Between the channel. There was no roll there, the rolls are on the opposite side to pull the skeleton after it had been operated on.

Q. 129. But they were brought close together at that point?

A. Yes.

Q. 130. And after you came back from Anheuser-Busch did you continue to feed the gutta percha tissue and the foil from separate rolls and bring them together down at the machine punch?

A. We did that for a few days and then the thing came up and Dr. Warth said, "Why don't you put them together

and put them in singly," which we did. I built a machine for that. We found it was very beneficial so far as production was concerned.

Q. 131. What kind of a machine did you build as a result of Dr. Warth's suggestion?

A. Well, it consisted of a table with four legs and a [fol. 503] mounting for the two materials, the foil and gutta percha, and a series of combining rolls and a rewinding stand which was operated by a foot pedal, the speed of which was controlled by a friction disc in a planetary fashion, by a small motor.

Q. 132. I hand you two photographs. Will you state what they show?

A. That is the machine, yes.

Q. 133. That is the machine that was used for bringing—combining the two strips in one roll?

A. Which we called the combining machine, yes, sir.

Mr. Darby: I offer in evidence this photograph identified by the witness.

The Court: When was that done?

The Witness: Right after I returned from Anheuser-Busch, it might have been a week after we returned.

The Court: What year was that?

The Witness: In 1926, in the Fall.

The Court: In the Fall of 1926?

The Witness: Yes.

Mr. Warland: I do not want to keep interposing objections, your Honor, but I do object to this photograph going in as being incompetent, irrelevant and immaterial.

The Court: You can have your objection noted but they say this is the way of proving the date. If it is, then, it is admissible. They can only show use at a certain time. If this photograph was taken at or about the time it is some evidence, of course.

(Marked Plaintiff's Exhibit 52 in evidence.)

[fol. 504] Q. 134. I hand you a paper, appropriation No. 91,092; will you state to what it refers?

A. It refers to this combining machine.

Q. 135. What is the date of the appropriation?

A. January 1st, 1927.

Q. 136. Is that your signature in the lower left-hand corner?

A. It is.

Q. 137. Was it applied at or about the time of the appropriation?

A. According to that appropriation it must have been although it might have been the machine was finished when we took out the appropriation.

The Court: Did you sign your name at about that time?

The Witness: About the time, yes.

Mr. Darby: I offer in evidence the appropriation identified by the witness.

Mr. Warland: The same objection.

The Court: Same ruling. It will be received.

(Marked Plaintiff's Exhibit 53 in evidence.)

Q. 138. How did this machine authorized by Plaintiff's Exhibit 53 compare with the photograph Plaintiff's Exhibit 52?

A. Identical.

Q. 139. This was the appropriation for the machine corresponding identically to the machine in the photograph?

A. Yes.

Q. 140. Did you later build identical machines?

A. Yes, I believe we built two more.

Q. 141. Did you ever make any change in them so far as the operation goes?

A. Not in those.

Q. 142. I hand you another appropriation. What is the date and number of that?

A. 91,133.

[fol. 505] Q. 143. The date?

A. Dated February 24, 1927. It covers to build another machine of the same type. It says here, Cover building of additional gutta percha combined machine identical to the one built on appropriation 91,092.

Q. 144. Did you personally have a part in the building of these two machines covered by these appropriations?

A. I furnished the sketches.

Q. 145. In other words, they were of your design?

A. My design.

Mr. Darby: I offer appropriation 91,133 in evidence.

Mr. Warland: The same objection.

The Court: Same ruling.

(Marked Plaintiff's Exhibit 54 in evidence.)

Q. 146. What results, if any, did you find from the adoption of this suggestion of Dr. Warth to pre-combine the foil and gutta percha?

A. We were able to step up production, that is, we were able to increase the speed of the machines.

Q. 147. To what extent?

A. I believe we operated them at the rate of 425, or something like that, a minute.

Q. 148. When? After you adopted that?

A. After we combined them.

Q. 149. Before that, what rate had you gotten?

A. About 365 or '70. As a matter of fact, we changed that right along, it wasn't only a matter of changing the motor.

Q. 150. Can you explain why you were able to step up production?

A. With two separate webs going in, and gutta percha is a peculiar product to work with, it gets damaged on the [fol. 506] side of the roll, and then when it unwinds it will start to tear, and it will tear in a spiral fashion until it is separated.

Q. 151. Around the edge?

A. Yes. And then we have to stop the machine and undo all that until the sound part starts again, and in the meantime the machine might get overheated, and by the time the machine gets started again there would be all that time lost which is eliminated by combining the two.

Q. 152. Is that the way you are now using the method in Baltimore, with the two combined?

A. We are still combining.

Q. 153. You still use some of these combining machines?

A. We use some of these combining machines, but the majority is already combined, calendered on.

Q. 154. At some other plant?

A. Yes, that is, on the tin-foil; I do not think we have ever been able to get tin-foil calendered on successfully, that is the reason.

Q. 155. Do you know why?

A. I have no idea.

Q. 156. Just by way of explanation, taking, for example, this appropriation record, Plaintiff's Exhibit 53, will you explain what the figures on the back mean?

A. Those figures on the back represent the time and material, supplied against it at the time they were built. That is our custom——

Q. 157. In other words, your practice is to keep a record of your expenses under the appropriation right on the back of the appropriation record?

A. Yes, so we can keep somewhere near within the amount of the appropriation asked for.

Q. 158. Was it your practice to receive copies of these [fol. 507] appropriations in your capacity as engineer in the plant?

A. We originated the appropriation in our department, and we kept a copy in there, and all the posting was done in our department.

Q. 159. So you personally know of all these appropriations?

A. Oh, yes.

Q. 160. Have you made a careful search at my request for any earlier drawings than these drawings relating to the spotting attachment features or spotting features in machines than these drawings which have been offered in evidence as Plaintiff's Exhibits 47, 48 and 49?

A. I have. Most were, as I said to you before, temporary pencil drawings, or most of them were freehand sketches. They were all done away with at the time of consolidation; we needed room, and most of that stuff was just dumped out.

Q. 161. As I understand, you might find a few additional drawings in addition to these, but no earlier ones?

A. No, I do not believe we would find very many earlier ones; we might, I do not know.

Q. 162. Did you make a search as I requested you to find those?

A. I did.

Q. 163. Have you any personal knowledge as to why sketches and drawings that were made earlier are not available?

A. Yes. All these freehand sketches and drawings were,

after the work was done, filed and attached to the order and filed.

Q. 164. Where were they kept?

A. In my department, engineering. I had five file cases full of records of that sort, but we ran short of room, and these were all old records, and they were just simply thrown away.

[fol. 508] Q. 165. How long ago did this happen?

A. That happened in 1928, 1927 or 1928, I should say.

Q. 166. What was the occasion? Do you have any recollection at all on that point?

A. I do. We were short of room in the engineering department, and also since there were other employees coming in, they wanted also file cases, and we did not have them. So there were three of mine emptied and they were turned over to somebody else.

Q. 167. Did those drawings have any practical bearing on your operating equipment in your plant at that time?

A. No, they were since then drawn up, all drawn up.

Q. 168. They were superseded drawings?

A. They were superseded drawings, they had no value except it might be in this case, but we did not know.

Q. 169. I hand you a paper. Will you please read the same and state what your recollection is, if any, as to it.

A. Yes, I recall this.

Q. 170. Do you recall receiving this letter from Dr. Warth or Mr. Warth at the time or about the time it is dated?

A. I am sure that it was received by me because I do recall that he did bring in that material.

Q. 171. I notice in the second sentence of this letter, "I spoke to you the other day about a product which is being made by the E. I. duPont Company which is suited for adhesive purposes,"—the letter being dated incidentally November 19, 1926—"This particular material is nitrocellulose and gum base and is already thinned to a consistency that makes it easy to apply to paper or other material."

Do you recall what Warth was referring to in his letter? [fol. 509] A. He was referring to a material that he received which was, according to his mind, more adapted for thermoplastics of the cellulose type than he had before.

Q. 172. Had Warth had any discussions with you at or about this time about that?

A. He did.

Q. 173. What was he driving at?

A. He had a man working on that, working with nitro-cellulose material at that time, experimentally. On numerous occasions he brought us material for us to run in our machines.

Q. 174. On what machines?

A. Spot machines.

Q. 175. Coated on what?

A. On aluminum or tin.

Q. 176. Some kind of a metal foil?

A. Yes.

Q. 177. And Dr. Warth would bring you these samples to have you run them on the machines?

A. We would take them out to the man to have them run on the machines. He always brought them to me because I used to go out on the floor with him, or one of his assistants, to witness the run.

Q. 178. Did you at that time know that Dr. Warth was running on nitrocellulose base adhesive?

A. I am almost certain—I could not tell for sure that it was nitrocellulose, but it had all the appearance of it, it had the smell like ethyl acetate.

Q. 179. You are not a chemist?

A. No.

Mr. Darby: I offer in evidence the letter identified by the witness.

(Marked Plaintiff's Exhibit 55 in evidence.)

Q. 180. I notice this is a carbon copy with a signature on it. Do you know anything of Dr. Warth's practice with [fol. 510] regard to his correspondence?

A. Why usually he made a couple of copies and sent them to other members than the person addressed. Undoubtedly he sent another copy to someone else besides myself, but he would always sign them.

Q. 181. Have you made a search of your files for the original of this letter Exhibit 55?

A. My records do not go any further back now until around the beginning of 1928. That is the oldest I have.

Q. 182. I hand you a paper. Will you read the same and state whether or not you can identify it and if so when it was prepared?

A. I recall it.

Q. 183. Will you please read the paper?

A. "My invention relates to"——

Q. 184. I don't mean into the record, please read it enough to identify it.

A. "An unmetallic spot"——

Q. 185. Not into the record, read it to yourself.

A. Oh. Yes, sir, I do recall this very distinctly.

Q. 186. To what does the paper relate which you have just read?

A. It relates to an invention of Dr. Warth's on the use of varnished paper for spot crowns for certain beverages.

Q. 187. Is that the invention of the paper spot which is being manufactured by the plaintiff?

A. It is.

Q. 188. Did you sign this paper as of the date given thereon, July 13, 1925?

A. I did.

Mr. Darby: I offer this paper which has been identified by the witness in evidence.

(Marked Plaintiff's Exhibit 56 in evidence.)

[fol. 511] Q. 189. Have you any recollection of the work which Dr. Warth was doing at or about the time you signed this paper in 1925?

A. I have.

Q. 190. What is that recollection?

A. Dr. Warth brought me some of this paper, I believe it might have been a roll about one inch wide and he asked me to combine that or to put it on the spot crown——

Q. 191. You mean to run it in the machine with gutta percha tissue strips?

A. Separately, we were running them separately at that time?

Q. 192. Did you try to run it in the machine?

A. We did.

Q. 193. With what success?

A. The paper being heavy stuff was a poor conductor and we found we had to put the heater plunger on much longer a period, on top of the paper to penetrate the heat.

Q. 194. What happened?

A. It curled it up on the edge. We had some trouble but we finally got the right stuff.

Q. 195. Now, your results with running this in the machine were not satisfactory?

A. They were not very satisfactory, no.

Q. 196. In other words you found running paper in the machine a different proposition than running a metal foil?

A. Yes.

Q. 197. Did you have any other way of making paper spots on this machine where you could not run paper in?

A. No, we had no other way that I know of.

Q. 198. Do you know of any further efforts to manufacture paper spot crowns with these separate strips run into the machines, separate paper strips and the gutta percha?

A. I do. Warth showed me one that operated with different thicknesses, separate strips.

[fol. 512] Q. 199. Any better success when you were using separate strips?

A. No, it was harder with the combined strips.

Q. 200. You didn't have combined strips at that time?

A. No.

Q. 201. When you got the paper combined with the gutta percha what happened, were you able to run it through?

A. At the time we had the right material that didn't warp any more.

Q. 202. You had the gutta percha combined on the paper?

A. Well, we combined it on the combining machine, and then we did it, after some experimentation, we did do a little experimenting.

Q. 203. Do you know where you got your first combined gutta percha and paper?

A. You mean the date?

Q. 204. Do you know where you got the combined gutta percha and paper?

A. I received it from Dr. Warth.

Q. 205. Do you know where the plaintiff company, the Crown Cork & Seal Company received that paper?

A. I have no idea, no.

Q. 206. Did you have any contacts with the Bishop Gutta Percha Company?

A. Yes, but that was some time later when we ran into certain difficulties.

Q. 207. You had no contact with the Bishop Gutta Percha Company at the time you first began receiving products of combined gutta percha and paper?

A. That is right.

Q. 208. You had no contact?

A. No contact until that time.

Q. 209. But you know when you did begin to receive the combined material you were able to run it through the machine and make paper spot caps, is that correct?

A. Yes, we were.

[fol. 513] Q. 210. Did you try combining the paper and the gutta percha on your own combining machines?

A. Yes.

Q. 211. Did you do that to some extent?

A. We did that, but we had one difficulty, and that is that the gutta percha seemed to adhere to the shiny side, you see, rather than to the rough side. We combined it, and in unwinding it it finally worked it way over to the shiny side.

Q. 212. This combining machine simply took the two strips in the one machine over a tortuous course under rollers, and then wound them on the same reel?

A. On the same reel.

Q. 213. In that combining machine did you get enough of a satisfactory combination to make caps and sell them?

A. Oh, yes.

Q. 214. And did you sell paper spot caps made that way on the combining machine?

A. Yes.

The Court: When they were wound on the combining machine you say the gutta percha got on the other side?

The Witness: Yes, and the operator had to stop the machine, to tear it and run it off again, and then go ahead for a while. But it wasn't so very long until we got it calendered, and then it was all right.

Q. 215. So, after you got your own combining machines you began to combine the paper as you did the foil and ran that into the machine?

A. Yes.

Q. 216. Referring back to your work with Dr. Warth in 1926 on this nitrocellulose gum adhesive, as he put it, when did you next have contact with him on that type of adhesive for spot crowns?

A. I think that must have been in 1932, I believe.

[fol. 514] Q. 217. What were the circumstances surrounding your associations with Dr. Warth at that time?

A. The circumstances were that Dr. Warth brought me coated material, and I run it for him in the assembly machine, had it run in the spot machine, rather.

Q. 218. How did it run through? Did it run through?

A. It did, it showed right off that there were possibilities.

Q. 219. Did you make caps?

A. We did make caps, yes.

Q. 220. What happened to the caps, do you know?

A. Why, I kept them down in my department.

Q. 221. I think you still have some of them available.

A. I still have those, the very first ones, I still have those today.

Q. 222. Will you obtain those caps and produce them? Have you got them in the court room?

A. No, they are not here, they are in Baltimore.

Q. 223. Well, now, what did you know about the adhesive on this material that you ran for Dr. Warth in 1932? Did you know that it was nitrocellulose material?

A. Yes, I knew it then.

Q. 224. How did you know it?

A. By the name, of course, also he told me, talking to Dr. Warth about it.

Q. 225. From your general conversation?

A. Yes.

Q. 226. Without referring to what he told you, as I understood it, you made up these caps and ran them and delivered them to Dr. Warth, is that correct?

A. Yes.

Q. 227. Have you any personal knowledge, without reference to what Dr. Warth told you, as to what he did with them?

A. He made tests, carried on tests with them.

[fol. 515] Q. 228. Is that of your own knowledge, personal knowledge?

A. Yes, I knew he did that.

Q. 229. You saw him running them?

A. I saw Miss Stover, or somebody was running them. She carried on the tests, in fact, she prepared the material, she coated the strips.

Q. 230. Just how was that done, in the laboratory?

A. In the laboratory, yes.

Q. 231. I hand you a letter dated June 29, 1933, and another dated July 24, 1933; do you know anything about those letters?

A. Yes, I do.

Q. 232. What do they relate to?

A. They relate to equipment for coating this material.

Mr. Darby: I offer in evidence these two letters dated June 29th and July 24th, 1933, in evidence, as one exhibit.

(Marked Plaintiff's Exhibit 57 in evidence.)

(Recess to Thursday, November 14, 1935, at 10:30 a. m.)

Brooklyn, N. Y., November 14, 1935.

Met pursuant to recess at 10:30 a.m.; present as before.

Mr. Darby: With the Court's permission we would like to interrupt the testimony of Mr. Goebel and put on another witness.

The Court: I do not mind if the other side does not object.

Mr. Warland: No objection.

[fol. 516] IRVING M. OBERFELDER, called as a witness on behalf of the plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. Darby:

Q. 1. Where do you reside?

A. Baltimore, Maryland.

Q. 2. What is your business?

A. I am in the ginger ale business.

Q. 3. What is the name of your company?

A. The Gosman Company.

Q. 4. What is your official connection with that company?

A. President and general manager.

Q. 5. How long have you been in the ginger ale business?

A. Eighteen, nineteen years.

Q. 6. How long have you been president of the Gosman Ginger Ale Company?

A. For approximately the same time.

Q. 7. In connection with the manufacture and distribution of ginger ale what kind of crown caps do you use?

A. Well, I do not quite understand the question.

Q. 8. What type of crown caps do you use?

A. We use a standard crown with a paper spot disc.

Q. 9. I hand you a box of crowns marked Plaintiff's Exhibit 28. Will you please examine the same and state whether or not that is the crown you use?

A. Yes, that is the same type of crown we use.

Q. 10. Where do you purchase those crowns?

A. Crown Cork & Seal Company.

Q. 11. In this box, Plaintiff's Exhibit 28, I notice some crowns are light-colored paper and some dark-colored [fol. 517] paper. Will you please explain which you use?

A. We use the dark color paper, yes, I think we use this dark color.

Q. 12. How long have you been using these crowns like Plaintiff's Exhibit 28?

A. Approximately five years.

Q. 13. Before you used these crowns what did the Gosman Company use?

A. We used a natural cork disc.

Q. 14. For how long a time?

A. Oh, for a great many years.

Q. 15. Did you use anything else than natural cork in any substantial portion of your business?

A. No; we used practically nothing else. I would say 100 per cent natural cork.

Q. 16. Where did you obtain those natural cork crowns that you purchased from time to time?

A. We bought them originally from the Crown Cork & Seal Company.

Q. 17. What do you mean, originally?

A. Well, we bought from the Crown Cork & Seal, and then I wasn't quite satisfied with the type of crowns we were getting, and we switched to another concern and found them unsatisfactory, and went back to the Crown again, and then switched to a second concern, and finally came back to the Crown Cork & Seal because we found the others were not quite as good as the crowns the Crown Cork & Seal made.

Q. 18. Why were you doing this switching?

A. We found that the natural cork did not have the

proper holding qualities, we had more or less trouble with the natural cork disc.

Q. 19. Will you please tell me some of the troubles that you had?

[fol. 518] A. Well, we found there were a number of troubles. We found that with the natural cork we had quite a few leakers, the disc sometimes would crack, and there were certain imperfections in the natural cork disc at that time that would permit the gas to get out. We also found that there were certain specks, the cork dust would get into the liquid, and on account of the shape of the bottle these little specks would become very much magnified, which was not a very good sales point. We also found that if we stored our goods for quite some time, that is, stored them with the natural cork, they would have in time a peculiar woody taste, I might say, from the natural cork itself.

The Court: The product became corky?

The Witness: Yes, the product became woody in time, as we call it.

Q. 20. Did you complain to these different companies including the Crown Cork & Seal Company about these troubles you were having?

A. We did, we took it up with the Crown Cork & Seal on many instances and with the other companies to try and find some way that we could get away from the natural cork.

Q. 21. And over what period of time did those troubles cover before you adopted the paper spot crown of Plaintiff's Exhibit 28?

A. It was quite a number of years. We had been having trouble I might say ever since I was in the business, we had more or less trouble with natural cork discs.

Q. 22. Until you got these paper spot crowns you were not able to get anything but the natural cork that was satisfactory?

[fol. 519] A. No, there was nothing made at that time that I knew of that would take the place of natural cork.

Q. 23. What about metal spot crowns, weren't they available?

A. Well, metal spot crowns we find are not just the right things to use for ginger ale.

Q. 24. Why not?

A. The amount of acid in ginger ale is quite heavy and the carbonation is very high and the action of the CO₂ plus the acid just eats the metal spots.

Q. 25. Do you know of anybody in the ginger ale business that uses metal spot crowns?

A. I do not.

Q. 26. Or ever have?

A. To my knowledge, no.

Q. 27. Do you have any recollection as to the circumstances surrounding your original—when your attention was originally called by the Crown Cork & Seal Company to these paper spot crowns of Plaintiff's Exhibit 28?

A. I know the Crown Cork & Seal Company, when they came out with these crowns originally asked me to try them out and I was rather hesitant. They told me at that time that they had sold one or two of the large users the crowns and that it was satisfactory to them and I told them that was fine but I would much rather wait for their final results before going into it.

Q. 28. You were rather skeptical about it?

A. Yes, it was at least two years after they first came on the market before I adopted them.

Q. 29. And how did you find them in comparison with natural cork?

A. Very superior.

Q. 30. What about the price angle of it?

A. The price has quite a lot to do with it. The crowns are cheaper and very much more efficient from every angle. [fol. 520]

Q. 31. And you are referring, of course, to the paper spot crowns?

A. Paper spot crowns, yes.

Q. 32. There has been some testimony with reference to one particular complaint that your company made to the Crown Cork & Seal Company some years ago where there was a rather substantial claim made by your company. Have you any recollection as to the incident?

A. Well, it was some years ago—I cannot recall exactly the number of years—I should say possibly ten years ago, we were at that time using a natural cork crown exclusively.

Q. 33. From whom?

A. From Crown Cork & Seal and we put up a great deal

of ginger ale with these crowns and we put up our goods and keep them in storage for a certain length of time and when these goods commenced going out we got a tremendous number of complaints and in checking into it we found that the natural cork had some effect on the product itself. I don't know what the chemical effect was but it made the goods unmerchantable and we had to take all that back, all that merchandise back and all the merchandise that we had on the floor and destroy it. We had a terrific loss that time.

Q. 34. So when crowns go bad it may be a very, very serious thing?

A. Very serious, not only do you lose customers but the consuming public are not using your product.

Q. 36. Since you adopted these paper spot crowns of Plaintiff's Exhibit 28, have you used any natural cork crowns?

A. We have not.

Q. 37. None at all?

A. None at all.

Q. 38. You referred to the question of storage. I understand it is a fact that companies such as your own and [fol. 521] Canada Dry and others must prepare their product for possibly long storage in their own plant and their distributors' plants, is that correct?

A. It is.

Q. 39. And does this question of storage accentuate the weakness of natural cork crowns?

A. Yes, very definitely.

Q. 40. In what way?

A. Because the longer the goods are in storage—if I may correct that statement—we put the goods in storage for two reasons, one is to get the aging qualities necessary—there are certain chemical reactions take place and we have got to keep a certain amount of goods on hand at all times because not alone do we sell the local trade but the out-of-town trade and out-of-town distributors keep goods on their shelves for months at a time.

We have got to put out goods so that we know when the dealer gets them that they will keep in his premises, it isn't a day-to-day turn-over.

Cross-examination.

By Mr. Warland:

X Q. 41. You spoke of going to other manufacturers for some of the goods that you got when Crown Cork & Seal goods developed unsatisfactory tendencies. Do you mind stating who those other manufacturers were?

A. I do not mind; I do not know whether it is just the right thing to do, but if you insist on it, I will be glad to.

X Q. 42. Yes, please tell me who they are.

A. Why, at first, after switching from Crown Cork, I believe, I went to Truslow & Fulle, and tried out their crowns for some time and they weren't satisfactory. Then, we [fol. 522] went back to the Crown, and then went from the Crown to the Armstrong Cork Company, and after trying out their crowns, discontinued them and went back to the Crown again.

X Q. 43. These, of course, were natural cork crowns you are speaking of?

A. Natural cork discs, yes.

The Court: At that time, did you know of anybody in your line of business that was using anything else?

The Witness: I did not.

X Q. 44. You say that the metal center spot is not satisfactory for ginger ale, is that right?

A. As far as I know, yes, it has never been satisfactory on account—

X Q. 45. The paper spot is better?

A. The paper spot is better, yes, definitely so.

X Q. 46. And the paper spot pasted on a composition cork disc is much cheaper than a natural cork would be, is it not?

A. Yes, it is cheaper.

X Q. 47. And that had something to do with your changing from the natural cork to center spots, did it?

A. I wouldn't say that was the primary reason; that was not a primary reason. The reason we changed was because we wanted a crown that would keep our ginger ale right, a crown that would eliminate trouble. We tried out all kinds of natural cork crowns, regardless of expense, trying to get the proper kind of natural cork crown to hold our product, but couldn't find it.

X Q. 48. But one of the factors, of course, is the factor of expense?

[fol. 523] A. That was a secondary factor. We were trying to get the proper cork for sealing purposes, and we did not stop at expense to find it.

X Q. 49. Do you recall approximately the first date when you first bought crowns with a paper center spot?

A. The exact date, no; I should say it is about five years.

X Q. 50. That would make it around 1930, 1929 or 1930?

A. Sometime in there, 1929, 1930, 1931, I do not know, somewhere in those years.

X Q. 51. You mentioned one firm; you went to two firms, you went to Truslow & Fulle and Armstrong; were there any other firms that you went to?

A. At that time, no; those were the only two I tried.

X Q. 52. You never went to the defendant, Ferdinand Gutmann & Company?

A. I did not, no.

X Q. 53. You spoke of having some trouble about ten years ago. What was done to remedy that trouble?

A. Well, we had to dump, take back from our trade the merchandise that we had sent out. We had a great many thousand cases on the floor, and we had to dump all that. That was all we could do, just destroy it.

X Q. 54. After that you went right on using natural cork, a better quality natural cork, is that so?

A. No, I wouldn't say a better quality. We were getting what we thought was the best quality at the time.

X Q. 55. But you didn't have any more trouble then until you began to buy these center spots about 1930, is that right?

A. Well, I do not say we had no more trouble, no. We had more or less trouble all the time of various kinds, but never quite as bad as that.

[fol. 524] X Q. 56. Do you know whether the Crown Cork & Seal Company has any interest in the Gosman Ginger Ale Company?

A. To the best of my knowledge and belief, absolutely none.

Redirect examination.

By Mr. Darby:

R. D. Q. 57. Why didn't you use ordinary composition cork without the spot after you had trouble with natural cork?

A. The ordinary composition cork is not made for holding qualities, it is made for quick consumption of drinks that are put into a store and not kept on the shelf but used right away for a daily turn-over, on account of composition cork, the way the mixture is put together, the binder is used, in ginger ale the acid qualities and high volume of gas in ginger ale will decompose the composition cork. That is the reason we can't use it.

GEORGE GOEBEL, recalled.

Direct examination continued.

By Mr. Darby:

Q. 233. Referring to Plaintiff's Exhibit 57, and more particularly to the paper on the letterhead of John Waldron Corporation, will you please explain briefly what that relates to?

A. Yes, this relates to a quotation for equipment to coat the nitrocellulose adhesive onto the foil and slit it into ribbons and coils thereafter.

Q. 234. What was the purpose in receiving these quotations?

A. The purpose was that we intended to go into the use [fol. 525] of this material exclusively.

Q. 235. You intended to adopt the material, what material are you referring to?

A. I am referring to the adhesive, the nitrocellulose base, gum adhesive.

Q. 236. What was the equipment for?

A. The equipment was for coating material and to dry it in a long drying oven, to take out the solvent so that it would solidify and so it could be handled in the machine.

Q. 237. And what is the amount of the quotation on that paper there, the total?

A. The total amount of this quotation—I think it is over \$10,000, here it is totalled up, \$10,652.

Q. 238. Well, are you familiar with what preceded the receipt of that proposal by the Crown Cork & Seal Company from the John Waldron Corporation?

A. Yes, I am familiar with that.

Q. 239. Well, tell the story in your own words.

A. You mean what we did after we received the appropriation—I mean—

Q. 240. No, what preceded, what came before the receipt of this proposal?

A. After we saw the demonstration in the Waldron Corporation's plant then of course we sent them an inquiry, I do not know whether it was verbal or by letter, to give us a quotation for the equipment.

Q. 241. Did you have any tests run at the Waldron plant to see if their equipment was satisfactory?

A. We did, otherwise would never have spent this money.

Q. 242. What do you personally know of these tests?

A. I was present at the time they ran the tests.

[fol. 526] Q. 243. And how many tests were they?

A. We ran two different tests at two different dates.

Q. 244. I hand you a letter, will you please read the same and state what it is?

A. This is a letter written to me by Mr. Warth.

Q. 245. Now, referring to the first sentence which reads, "The second lot of thermoplastic coated aluminum foil .0022 thickness, prepared at the Waldron Company and slit there was put through the regular assembling operation on the third floor." Does that refer to one of the tests to which you have previously testified?

A. It does.

Q. 246. And did you receive this letter on or about the date, July 11th, appearing thereon?

A. I did I am sure.

Q. 247. Or at least a copy of it?

A. A copy, yes.

Mr. Darby: I offer in evidence the paper identified by the witness.

(Marked Plaintiff's Exhibit 58 in evidence.)

Q. 248. This contract about which you have testified a few minutes ago is identified as Plaintiff's Exhibit 57, is it not?

A. It is.

Q. 249. Or rather the proposal?

A. Yes.

Q. 250. Were you present at this test on the so-called second lot of thermoplastic coated aluminum foil and the cutting of it at the Waldron Company plant at New Brunswick, New Jersey?

A. I was.

Q. 251. And you observed the whole operation?

A. I did.

Q. 252. And were you present at the preceding test—I [fol. 527] believe you said there were two tests.

A. Two tests—I was.

Q. 253. And how long before the second test did the first test take place so far as you can recall?

A. The first test I believe was about May, I am not sure but it was a couple of months earlier.

Q. 254. The same year, 1933?

A. The same year, 1933.

Q. 255. Following this second test and the receipt of this Exhibit 58 by you from Warth what was done toward obtaining the commercial apparatus along the line of the proposal contained in Exhibit 56?

A. After receiving the proposal I entered an appropriation which was signed and sanctioned and we then sent them a purchase order for that equipment.

Q. 256. I hand you a paper; will you please read it and state what it is (handing to witness).

A. This is a form contract.

Q. 257. That was a contract that was formally tendered Crown Cork & Seal Company by the Waldron Company pursuant to the proposal, Exhibit 57, is that correct?

A. Yes, sir, that is correct.

Q. 258. And did you accept that contract?

A. We did.

Mr. Darby: I offer in evidence the contract identified by the witness.

The Court: That is a copy, isn't it?

The Witness: It is a copy.

Mr. Darby: It is plaintiff's copy in plaintiff's file.

(Marked Plaintiff's Exhibit 59 in evidence.)

[fol. 528] Q. 259. What is this paper that I now hand you?

A. This is a follow-up copy which is usually sent with the order to the people.

Q. 260. And that is a confirming telegram, confirming the order, is that correct?

A. That is correct, and also giving shipping instructions.

Q. 261. And was that telegram sent approximately on the date mentioned therein, namely, August 3, 1933?

A. I cannot state positively because that is out of my activities.

Q. 262. You know the contract was sent about that time?

A. Absolutely.

Mr. Darby: I offer in evidence a copy of the telegram.

(Marked Plaintiff's Exhibit 60 in evidence.)

Q. 263. Did the Waldron Company, following the acceptance of this contract for approximately \$10,000 worth of equipment, furnish such equipment?

A. Yes.

Q. 264. How long after they furnished it was it installed?

A. We started immediately to install it, but it took quite a little while to get it functioning and in operation. We had great difficulties—not in the coating, but in the slitting of the material. It seems to be very difficult to handle foil, the thickness of this, with us not having any previous experience.

Q. 265. Had the Crown Cork & Seal Company ever done on a large scale coating of metal foil with a nitrocellulose resin adhesive before?

A. No.

Q. 266. This was an entirely new commercial operation?

A. Entirely new, yes.

[fol. 529] Q. 267. Will you explain why you were running these tests in the John Waldron Company in New Brunswick, New Jersey, in 1933 as you have testified, what was the object of the tests?

A. The object was this, that pursuant to comparatively good results we had obtained on previous tests with a temporary coating—

Q. 268. What do you mean by temporary coating?

A. I would say in a primitive way with a small coating machine, these tests showed there was great possibilities in the use of that material. It was more consistent, it would not oxidize, and—

Q. 269. Well, before you ran these commercial tests at the John Waldron Company there had been coating done in a

small way in the Crown Cork & Seal Company plant with this nitrocellulose resin adhesive?

A. Yes, there had been for a number of years previous.

Q. 270. With this same material?

A. Similar material, not the 4620, but years before we had a similar material that did not come out so well.

Q. 271. I am speaking about the year previous to these tests at the Waldron Company had you coated foil at the Crown Cork & Seal Company plant?

A. Yes, we had.

Q. 272. And do you know where this coating was done?

A. In the laboratory, under the direction of Dr. Warth.

Q. 273. And who under Dr. Warth did this coating, do you recall?

A. Principally Miss Stover, she worked on it all the time.

Q. 274. And she is the one that did the work for Dr. [fol. 530] Warth, under his supervision?

A. Practically all the work.

Q. 275. With this nitrocellulose resin adhesive?

A. Correct.

Q. 276. Do you know whether or not before you ran these commercial tests on coating there had been any tests made so far as the caps themselves were concerned and their suitability for use?

A. There had been tests made.

Q. 277. What do you know of your own knowledge with respect to those tests?

A. In fact, I carried on some of those tests myself, just to make sure that the material had the qualities we were looking for.

Q. 278. Where was the principal testing done?

A. The principal testing was done in the laboratory.

Q. 279. By whom, please?

A. I really couldn't say. Miss Stover did some, I know; there might have been somebody else, I do not know.

Q. 280. In whose laboratory?

A. In Dr. Warth's laboratory.

Q. 281. Following the tests of the caps for suitability on bottled beverages, you then went to the testing of the commercial suitability of material for coating on a large scale, is that correct?

A. That is correct, yes.

Q. 282. What is the speed of the spotting machines, center

spotting machines, which you now use in the plant of the Crown Cork & Seal Company?

A. Our standard machines operating today?

Q. 283. Yes.

A. That speed ranges from 520 to 540, somewhere around there; it is not less than 520.

[fol. 531] Q. 284. You testified yesterday to having obtained a speed of 420 some place in the record; what were you referring to?

A. Those were the machines, the original crown assembly machines. Those were the machines that we built before the latest machines.

Q. 285. When were these latest machines built that give you 520?

A. When were they built?

Q. 286. Yes, roughly speaking.

A. They were built, they stretched over a period. They were designed in 1929, I believe we started, or 1930, when we first started to make drawings.

Q. 287. So far as the operating mechanism of these present machines is concerned, the preheater plunger, the punch and the post-heater plunger and the dial, do they differ any from the photographs, Plaintiff's Exhibits 41 and 42?

A. They differ in construction but not in principle.

Q. 288. Do the machines have those parts shown in the photograph?

A. They have parts, similar parts, but since the machine was drawn entirely new, why, the parts would not be interchangeable one with the other, but they were identical in the line-up and in principle.

Q. 289. You mean they all had a preheater plunger and a punch and a post-heater plunger and a dial?

A. They all had a preheater plunger and punch and post-heater plunger and dial.

Q. 290. Did you keep the same spacing or did the spacing vary?

A. We did spread some of the distances somewhat, because on the older machine which was basically a crown assembly machine, we did not need the greater space to apply the cork disc into the shell, but in this operation the crowns should have a little more room.

[fol. 532] Q. 291. What variation in space did you have? Was it a matter of inches or feet?

A. Well, it is a matter of inches rather than feet.

Q. 292. What do you mean? For instance, your preheater plunger, how far in your present machines is it from the punch?

A. We kept those about the same relative distance.

Q. 293. What is that?

A. It should be as close as possible.

Q. 294. Now, your post-heater plunger.

A. That is also about the same, yes, it should be as close as possible to prevent the spot from slipping.

Q. 295. You kept that as close as possible?

A. We did.

Q. 296. Your dial, how close is that to the post-heater plunger?

A. The dial is about the same distance, it might be just a few stations more.

Q. 297. You mean by a few stations a couple of inches?

A. It might be two or three inches more, greater distance from the dial.

Q. 298. So this step-up in speed is due to mechanical operation?

A. The step-up in speed is due to the fact of having a little more room available to apply heat, and the parts are designed, the operating parts, much lighter, to avoid momentum and inertia, and that is why we have speeded it up.

Q. 299. Yesterday I handed you this paper, Plaintiff's Exhibit 5; and I ask you to read your testimony on page 514. I asked you: "Will you read the same and state whether or not you can identify it?" And you answered: "I recall it." And then further down, in Q. 185, you said: "Yes, sir, I do not recall this very distinctly."

[fol. 533] A. That must be an error. I did not mean to say, "I do not," because I recall that I did.

Q. 300. You do recall it?

A. Yes.

Q. 301. The "not" should be stricken out?

A. Should be stricken out, absolutely.

Q. 302. Have you ever been in the plant of a competitor of the Crown Cork & Seal Company in the manufacture of crown seals?

A. I do not recall that I have ever been in a plant outside of the New Process plant, but then the merger was already completed.

Q. 303. By the way, you referred yesterday to consolidation at the time that a number of these old records were

destroyed. What consolidation were you referring to?

A. I referred to the merger, the consolidation of the New Process and the Crown Cork.

Q. 304. What has been the practice of the Crown Cork & Seal Company with respect to letting others go in their plant?

A. We have always had quite a rigid rule to be very careful in letting visitors go through the plant. It is not the custom to take anyone through; we have to be dead certain that the person is strictly on business, or occasionally we might take a friend through that we know is not in the same line of business.

Cross-examination.

By Mr. Warland:

X Q. 305. I believe you said yesterday that you went to work for the Crown Cork & Seal Company in 1914.

A. That is correct.

X Q. 306. What month in 1914?

A. The middle of July.

[fol. 534] X Q. 307. The middle of July, 1914?

A. Yes, sir.

X Q. 308. Who was superintendent of the Crown Cork & Seal Company at that time, factory superintendent?

A. They had a man there named Cade.

X Q. 309. Did they have a man named Smith, Albert C. Smith?

A. Not at that time. I know that Albert C. Smith was employed in the production department when I came with the Crown Cork & Seal Company.

X Q. 310. He was superintendent of the production department?

A. In later years.

X Q. 311. When you came to the Crown Cork & Seal he was superintendent of the production department, is that right?

A. Why, I can't surely answer that question, because at that time the organization was so great, so large, it took me some time to get acquainted with the people around. What his functions were at that time, I did not know.

X Q. 312. Didn't you meet him when you went there?

A. I met hundreds of people; I might have met him also. I am sure I met him later on.

X Q. 313. Wasn't he over you in the matter of production?

A. He was not; I reported direct to the president from the very beginning.

X Q. 314. Who did Mr. Smith report to?

A. Mr. Smith reported to the works management.

X Q. 315. Now, you say Mr. Smith was superintendent of production, is that right?

A. I do not; I didn't say that.

X Q. 316. What was Mr. Smith, so far as you know?

A. Before he left he held the position as plant manager [fol. 535] in the Highlandtown plant. That does not mean the entire plant. We have two divisions, the Crown Manufacturing Division and the machinery, that is entirely different.

X Q. 317. Where were the center spots made, in the Highlandtown plant?

A. In the Highlandtown plant.

X Q. 318. That is the plant Mr. Smith had charge of?

A. In later years, yes.

X Q. 319. You went to the Highlandtown plant when you went there?

A. My headquarters were in Guilford for a number of years until, oh, I guess probably in 1924 or 1925, when we moved the entire organization to Highlandtown, the production end was there.

X Q. 320. You identified a drawing of a machine here yesterday on which you made the first center spots. Where was that machine used, at Highlandtown?

A. Yes.

X Q. 321. All your testimony then in reference to that machine is about the events that occurred at Highlandtown, is that right, I am speaking of the slide machine.

A. I understand.

X Q. 322. You know what I mean?

A. Yes.

X Q. 323. That was all done at Highlandtown?

A. Yes.

X Q. 324. Mr. Smith was at Highlandtown, wasn't he?

A. When the machines were built, Mr. Smith, to my knowledge, was at Guilford Avenue. The entire office organization at that time was at Guilford Avenue.

X Q. 325. The whole office organization was there and Mr. Smith had charge of the work at both places, didn't he?

A. No, what do you mean both places, do you mean the bottling machinery and also the crown machinery?

[fol. 536] X Q. 326. Yes.

A. Not to my knowledge, no. Those two never had been merged into one.

X Q. 327. Mr. Smith just had charge of the crown machinery?

A. He was in the crown production department, yes.

X Q. 328. I believe you said yesterday you started to make center spots the latter part of 1915, is that correct?

A. No, I think at that time we were building the machines, those slide machines. It might have been 1916 when we were actually putting them into operation. I cannot recall. If that was the only job I handled for that company it might be a little different, but there are hundreds of others.

X Q. 329. I am going to read some testimony that Mr. Smith gave in an interference proceeding, in Lange v. Warth, and see if that coincides with your recollection:

"When did the Crown Cork & Seal Company commence the manufacture of spot crowns, and I refer to bottle caps having small center spots covering the insert of metal caps?

A. About 1914.

"Q. And did they commence commercial production at that date?

A. They did.

"Q. Of what was the center spot composed, of what material, at that date?

A. Tin-foil spot and the adhesive was gutta percha, I think. I am not sure what it was in 1914."

Now, when do you say they first began to make center spots?

A. I cannot tell you the exact date, it was between 1915 and 1916.

[fol. 537] X Q. 330. But Mr. Smith had charge of the records of the company, didn't he?

A. No.

X Q. 331. Don't you know that he was called as a witness in this proceeding to identify the records of the company?

A. I don't know that. It was not one of my functions so I don't know.

X Q. 332. You were asked about this Johnson Duplex machine that was bought from the Crown Cap Manufacturing Company. You say that is still in the Crown Cork & Seal Company?

A. Yes, that is still ours.

X Q. 333. Now, Mr. Warth, you say in 1926, told you about some nitrocellulose adhesive, is that right?

A. In 1926?

X Q. 334. Yes.

A. Well, I am not sure whether it was 1926 exactly, it might have been before that. It was around that time.

X Q. 335. You were shown a letter from Dr. Warth dated some time in 1926, and which is in evidence. Did Dr. Warth show you nitrocellulose at that time?

A. He did.

X Q. 336. How do you know it was nitrocellulose?

A. Well, I do know this, that a resin base material of that nature has usually a solvent of ethyl or methyl or butyl—as solvents, and it had a peculiar smell.

X Q. 337. All those nitrocellulose adhesives have a peculiar smell?

A. Yes, they had a peculiar smell characteristic, so it is not hard to tell what the base is.

X Q. 338. You are not a chemist?

A. I am not a chemist.

X Q. 339. And all you know about this material that Dr. Warth showed you is what he said about it?

A. Yes, but I know enough about it to know the difference. [fol. 538] X Q. 340. After he told you what it was you knew what it was?

A. I don't want to say that he had to tell me. I knew that it must be so.

X Q. 341. Referring again to this nitrocellulose, you produced a letter dated June 29, 1933, marked Plaintiff's Exhibit 57, from the John Waldron Corporation. Now, prior to the date of that letter, you had not done much in the way of experimenting on this adhesive, had you?

A. Quite a bit, yes.

X Q. 342. But you were not sure of what it would do, were you?

A. From the very, very beginning, when we first obtained coated material, I mean hand-coated material and applied it on to the cork we saw the feasibility, that it was promising and it looked very promising, that is why we kept after it.

X Q. 343. You knew right away, as soon as you saw a piece of tin-foil or metal foil coated with that that that was going to make a good adhesive?

A. Not unless we tried it.

X Q. 344. And in order to make those tests you had to send to the John Waldron Corporation and have them make a test in June of 1933, is that right?

A. That was after we made the laboratory tests. At that time we were already certain that we wanted the equipment or else we would not have taken the time to go up there and ship a lot of material which had an extra slotting because the machine that the Waldron Corporation had would not take a width of 22 inches, it would only take a width of 19 inches so we had a special lot made up by Aluminum Company, narrow enough to go through that experimental machine at Waldron's, and that took some time too.

[fol. 539] X Q. 345. About how long would you say before the date of this letter of June 29, 1933, how long would you say you were experimenting with this adhesive?

A. Well, the laboratories did the experimental work.

X Q. 346. I am asking you how long, not who did it.

A. It was a number of years, I cannot tell exactly how long, but a number of years.

X Q. 347. And you have no way of fixing the exact date at all, have you?

A. I do, with one where we received a sample material.

X Q. 348. Where did you get the sample material from?

A. I don't know where Dr. Warth got it from, he obtained that, I did not buy that for him.

X Q. 349. You do not know anything about when he first got the first sample?

A. I saw him have it but I don't know where he got it.

X Q. 350. You don't know the date of that first sample?

A. No.

X Q. 351. Now, you put in evidence here a photograph of this machine which is in the back of the room and which has been marked Plaintiff's Exhibit 46, and the photographs marked Plaintiff's Exhibits 41 and 42. Will you show us the die in that machine that cuts the center spot out, is it, this one up here to which I am pointing (indicating).

A. This is the punch.

X Q. 352. That cuts the spot out, doesn't it?

A. Yes.

X Q. 353. Now, is that punch heated or is it cold?

A. It is always warm because the heat alongside of it would keep it hot.

X Q. 354. But you do not apply any heat to that punch?

A. Not in our regular production, but we have, however, used heat, used a hot punch.

[fol. 540] X Q. 355. In the machine you use now, you do not put any outside heat on that cutting punch?

A. No, it is not necessary with that heat on both sides.

X Q. 356. Do you put it on or don't you?

A. Not in our regular production, but the heat is radiated—

The Court: He said there was heat on each side.

X Q. 357. But you did not apply any outside heat, any electrical heat or any gas flame to that cutting punch, did you?

A. I want to make this clear.

The Court: If it is heat generally, it is applied to everything.

X Q. 358. Is there any heat applied directly to the cutting punch itself?

A. Not in our regular production but we have machines with the heat applied directly to the punch. I want to put it that way.

X Q. 359. You have other machines besides this?

A. On the machines we have used.

X Q. 360. Will you show me where the heat is applied to the punch?

A. We heated this punch here by electricity, right on this housing here (indicating) and that operates all right except that the heat must be controlled—it gets too hot and it gums up the gutta percha, or too cold—but if you keep it at a certain temperature it works fine. I do not know what the temperature is.

[fol. 541] X Q. 361. You do not know what the temperature is?

A. No, I don't remember.

X Q. 362. Above room temperature, isn't it?

A. Above room temperature, of course.

X Q. 363. But you cannot cut your center spots out with gutta percha adhesive if the punch is hot, can you?

A. If the punch is overheated, no.

X Q. 364. Now, you stated in answer to a question of Mr. Darby's that in 1929 you got your production up to 520 a minute.

A. I did not say 1929, to my recollection. The production of 520 plus was obtained after the new machines—the machines we are using today—were completed. The machines we were using at that time, in 1929, did not run that fast.

X Q. 365. Did you tell Mr. Darby a few moments ago that in 1929 you speeded up to 520 a minute?

A. If I did, I surely must have misunderstood him.

X Q. 366. It was after that you got them up to 520 a minute?

A. I have to repeat that again. This high speed is only obtainable with our latest type machines.

X Q. 367. But the point I am making is, when was it that you got your high speed, was it in 1929 or since 1929?

A. It was after 1929; I believe it must have been in 1931, I believe, when we got the new machine going, in 1932 perhaps, I really don't remember.

X Q. 368. That was after the Crown Cork & Seal Company bought the spotting machines from Mr. Johnson you got the high speed, that is right, isn't it?

A. We never operated the Johnson spotting machines.

X Q. 369. You never operated the Johnson spotting machine?

[fol. 542] A. We bought a couple of spotting machines from Johnson to be sent to our Toronto plant, and we took them to our Highlandtown plant to ascertain that they will operate and run. We didn't do anything to them, we packed them up and sent them to Canada.

X Q. 370. You bought them from Johnson and he shipped them to the Highlandtown plant and you tested them?

A. To test them as to their operation.

X Q. 371. That was in 1929?

A. I do not know; the invoice ought to show; I do not know when it was.

X Q. 372. But they worked all right, didn't they?

A. They worked, well, I wouldn't say they did, because Toronto doesn't use them any more, they are slow—

X Q. 373. What became of all those five machines?

A. I did not know there was five; all I know is there was two. Whether Toronto ordered some more after that, I haven't the least idea.

X Q. 374. You didn't make any authorization to scrap those machines that you bought from Johnson, did you?

A. That is a matter that concerns Toronto only, not myself.

X Q. 375. You wouldn't know?

A. I wouldn't know. I do know, however, on my last visit to Toronto that they were operating the Crown Cork spotting machines, I know that.

X Q. 376. Now, you say you met Johnson in 1918, is that right?

A. I do not know whether I can be certain about the year, but I met him years before, yes.

X Q. 377. You have seen him quite frequently, haven't you?

[fol. 543] A. No, sir, I have seen him only once, at the convention, I believe it was.

X Q. 378. When was that convention?

A. I have forgotten; 1918 or 1919 somewhere, I have forgotten the year, but I recollect his face. In fact, Mr. Johnson, when he was in the court room, I didn't recognize him because I only met him once since I met him the first time at the Crown Cork & Seal plant. I didn't even meet him then; I saw him.

X Q. 379. When you saw him he was not in the spotting machine department, was he?

A. No, he was with Mr. McManus.

X Q. 380. That was in the assembly department?

A. I have forgotten where it was I saw him with Mr. McManus.

X Q. 381. You said yesterday you saw him in the assembly department, is that right?

A. It might have been in the assembly department, I do not know.

X Q. 382. You were speaking about some drawings yesterday and you were asked this question by Mr. Darby: "Did those drawings have any practical bearing on your operating equipment in your plant at that time?" And then you said: "No, they were since then drawn up, all drawn up.

"Q. They were superseded drawings?

"A. They were superseded drawings, they had no value except it might be in this case, but we did not know."

Those were those blueprints you were speaking about yesterday?

A. Blueprints, yes.

X Q. 383. In other words, they were all made up since the case started?

A. No; the prints?

[fol. 544] X Q. 384. Yes.

A. Not the originals; they were old.

X Q. 385. What were the superseded drawings?

A. The superseded, they are not all superseded, only certain parts where we found it necessary to make a change in construction. We usually keep the original and mark it "superseded," and put either the same number or sometimes we give them a different number, and the originals were always kept on file, and the new one, but they were not used to make prints because after that we did not make any prints unless they were by special order from superseded drawings. The reason I brought those superseded prints here was because that the other drawings that were made after we superseded them were of a later date, and so I thought I would bring them along to show when they were made, the originals.

X Q. 386. You haven't got any original records back of 1928, have you?

A. Any which?

X Q. 387. Any original records, any original records back of 1928?

A. You mean in the form of pencil drawings and sketches used by the shop men?

X Q. 388. Yes.

A. No, we did not preserve them. You refer to the drawings, the sketches made to build the first experimental unit?

X Q. 389. I am asking if you have got any records of any kind back of 1928, original records?

A. Yes, we have drawings that I showed you, but we have not got any pencil sketches.

X Q. 390. You haven't got any of the original pencil sketches these drawings were made from, have you?

A. No, we haven't any more; we do not make it a practice [fol. 545] to preserve the original pencil sketches. After a drawing is once made, we destroy them, put them in the waste basket.

Mr. Darby: Do you want the originals from which these blueprints are made?

Mr. Warland: I am asking him if he has any original records back of 1928.

The Court: He testified yesterday they had no pencil sketches prior to 1928. These blueprints are copies of original drawings which they had.

Mr. Scull: What we want to know is whether or not there is any question as to these blueprints.

The Court: Some of them are prior in point of date to 1928.

Mr. Scull: Yes. What I meant was the physical thing, whether or not they are challenging the physical thing, because we can produce the originals—

Mr. Warland: I am asking the witness.

Mr. Scull: I am asking you now. Are you now objecting to the use of these blueprints instead of the original drawings from which the blueprints were made?

Mr. Warland: I would like to see the original drawings.

Mr. Darby: We have them here.

The Witness: They are here.

Mr. Scull: There was no objection made at the time.

X Q. 391. Now, this Anheuser-Busch incident that you testified about in 1926, was that the first time you used paper [fol. 546] spot crowns in order to overcome the difficulty?

A. I did not know we ever furnished Anheuser-Busch paper spot crowns.

X Q. 392. Center spots.

A. Center spots.

X Q. 393. Did you furnish them center spot crowns before that?

A. To whom?

X Q. 394. To Anheuser-Busch.

A. No; we haven't furnished them any prior to that visit.

X Q. 395. Before that they had been getting all natural cork?

A. Natural cork.

X Q. 396. Now, there has been offered in evidence here as Plaintiff's Exhibit 51 a letter dated April 15, 1925, referring to obsolete surplus idle machinery. You have got on there three tin-foil machines, \$3,705.60. What were those three tin-foil machines, were they to put on center spots?

A. Yes, these three machines I recall were the old slide machines that we discussed previously.

X Q. 397. The old spotting machines, the old slide spotting machines?

A. The old slide spotting machines, not this type (indicating), the other type.

X Q. 398. You said something yesterday in answer to Mr. Darby's question about combining the gutta percha with the foil or with the paper. Just what do you mean by combining?

A. We combine the two materials in order to eliminate interruptions in operation. What I mean by combining is to take the two materials and run them through, after they are put together, through a series of pressure rollers. The foil for instance we are in a habit of heating it at an elevated temperature and then roll the gutta percha on to it so that the two become one.

[fol. 547] X Q. 399. In other words when you say combine, you mean the gutta percha or any other adhesive is secured firmly to one side of the foil or paper, is that right?

A. That is correct.

X Q. 400. Either by hand or by a machine or in any other way?

A. By machine, yes.

X Q. 401. You mean like that shown in this Warth Patent 1,899,782?

A. Yes, that is substantially right.

X Q. 402. Well now, I show you a patent to Warth 1,899,783 and I call your attention to Fig. 3 which shows a strip of foil and strip of gutta percha being fed in separately.

A. Yes, I imagine that was separated to indicate that there were two different kinds of material, that is the way I figured it out.

X Q. 403. That is the way you used to put the gutta percha on the spots before you used this combined material or what you call combined, is that right?

A. That is the way we did it before we built the combining machines, yes.

X Q. 404. Are you using this method shown in patent No. 1,899,783 now?

A. No, now we exclusively use the combined material except on tin-foil which we have not been able to get up for calendering properly.

X Q. 405. And when did you stop using this method shown in patent No. 1,899,783 for aluminum foil or paper?

A. Whenever we got the combining machines finished.

X Q. 406. What date?

A. I don't remember dates, but it was quickly after we came from St. Louis because our production had to be boosted to take care of that business and then it was Dr. [fol. 548] Warth advised us to combine the two materials. It might have been in 1927 or 1928.

X Q. 407. This method which I showed you where they were fed in separately, you started that way back in 1915 or 1916, didn't you?

A. That is correct.

X Q. 408. Now, going back to this center spot made of glazed varnished paper, when was that first used?

A. I don't recall the exact year.

X Q. 409. Can you give us an approximate idea?

A. I really cannot tell you, I know that it was around perhaps 1926, 1925 or 1927, I really cannot exactly recall the date. When the samples that Dr. Warth—I supervised the running of them and I usually would take them out to the plant and state, "Here, run this material and see what happens" and that is about the only time that I was engaged with it. All the experimental work was carried on by Dr. Warth. I cannot name the exact year except that it was a good many years ago, a number of years ago.

X Q. 410. Long before 1920 you used varnished paper, didn't you?

A. No.

X Q. 411. Coated on one side with some sort of an adhesive?

A. I really cannot tell you whether it was 1920, I know it was quite a while ago.

X Q. 412. That is just the same kind of paper you use in these center spots now?

. Mr. Darby: I object, your Honor, this witness has not been qualified as to the character of papers, so far as the technical character of material goes.

The Court: Well, if he knows he can answer, I don't know whether he knows or not.

[fol. 549] The Witness: As I testified yesterday I do remember Dr. Warth bringing around a number of different kinds of samples of varnished paper and some did not

behave as well as others, that is they curled up on the edge after they were applied and then finally he brought some material around that was all right. I did not follow that very closely.

X Q. 413. When I speak of varnished paper I refer to the kind of paper in this center spot that comes from a box marked Plaintiff's Exhibit 28. (handing to witness).

A. This is what we call our paper spot crown.

X Q. 414. You know when you first saw that, that is the kind of paper I am asking you, what kind of paper Dr. Warth showed you. When did you first see it?

A. I cannot recall, a long while ago.

X Q. 415. That is varnished paper with an adhesive on one side?

A. Yes, it is varnished paper.

X Q. 416. Now, you used that same kind of paper for a great many years in the Crown Cork & Seal Company?

A. It all depends on what you might designate as a great many years. We have used it quite a number of years, yes.

X Q. 417. You have used it for making caps for screw cap bottles like ketchup bottles and mayonnaise bottles and so forth?

A. Our screw cap business is comparatively young, I believe we used varnished paper on crowns before we ever entered into the screw cap manufacture.

X Q. 418. I read you an extract from a stipulation made [fol. 550] in this Interference No. 60,878 which was put in instead of calling you as a witness. You say, on page 92, "The paper used in both machines since 1914 and 1915 was always varnished paper. That at the early stages of 1915 and 1916 the paper was varnished on both sides, but beginning a few years thereafter, certainly prior to 1920, it was obtained varnished on one side." Then they produced a specimen of paper "such as was used beginning 1918 and 1919"; that is correct, isn't it?

A. This refers to a different category of crowns.

X Q. 419. I am asking you about the paper, not about the crowns. Your statement is correct that I have just read to you?

A. It is correct so far as the use of varnished paper in actual crowns are concerned, yes, large diameter crowns, faced overall, all over the cork.

X Q. 420. Do you remember any machines that were put in evidence in that interference?

A. No.

X Q. 421. Yesterday, in answer to one of Mr. Darby's questions, you stated: "I have never made it a practice to remember dates because I cannot possibly do it." That is correct, is it?

A. I did.

X Q. 422. You do not remember what month Mr. Johnson was there in 1928, do you?

A. The reason I do remember that is on account of the consolidation which had taken place a couple of months before that.

X Q. 423. Right after the consolidation?

A. Yes.

[fol. 551] Redirect examination.

By Mr. Darby:

R. D. Q. 424. In your testimony you have been referring to material such as was made in 1915 and 1916 by the Crown Cork & Seal. Will you examine this and state how that compares to it?

A. This is the material that has been used, and we call Axa crowns.

R. D. Q. 425. In other words, since 1915 and 1916 you took the paper and coated it with either cardboard or pulp board?

A. Yes, sir, and also on cork.

R. D. Q. 426. Cork sheets?

A. Cork ribbon.

R. D. Q. 427. And that is the sort of stuff you were referring to in the interference and in this case as having been made in 1915 and 1916, is that correct?

A. Correct.

R. D. Q. 428. That was Warth Exhibit 52 in interference 6878, marked, is that correct?

A. That is correct. Yes, -sir.

Mr. Darby: I offer in evidence the strip of material identified by the witness.

The Court: It will be received.

(Marked Plaintiff's Exhibit 61 in evidence.)

The Witness: May I add that this material was punched and inserted into the shell, they had both the same diameter, and the lining was punched simultaneously with the cushion.

R. D. Q. 429. In other words, it was to make up caps something like this one I hand you in which the paper covers the pulpboard or cork, is that correct?

[fol. 552] A. Yes, sir, covers the entire surface, which are not suitable for a seal.

R. D. Q. 430. For a seal for what?

A. For any beverage, carbonated beverage or carbonated water.

Mr. Darby: I offer in evidence the cap identified by the witness as typical of what was made from the material of Plaintiff's Exhibit 61.

(Marked Plaintiff's Exhibit 62 in evidence.)

R. D. Q. 431. In other words, in making these all-over crowns you make large strips or sheets of combined paper and either pulpboard or cork and punch discs on them, and those discs are dropped into the crown seals?

A. As a rule we use continuous rolls of material being previously combined by cementing, and then punch them both together and insert it into the crown, yes.

R. D. Q. 432. You have testified with reference to visits to the Waldron Company at New Brunswick, New Jersey, in connection with tests preliminary to ordering equipment which was ordered later. What scale of production of crown caps were you getting ready for, will you give us some idea of what your plans were for production, what you had to get ready for?

A. We anticipated at that time to take care of our ultimate production, I mean of the production using the nitrocellulose altogether.

R. D. Q. 433. How many hours a day was that equipment run after it was installed?

A. After it was installed we had quite a bit of gutta [fol. 553] percha combined material on hand, and we started to work it at certain portions during the day and worked into it gradually, and worked it more afterwards until finally we wound up in two shifts to give over 100 per cent. Now, we are not quite as busy—

R. D. Q. 434. What do you mean by two shifts, how many hours a day would that equipment be working in two shifts?

A. That would be sixteen hours.

R. D. Q. 435. In other words, you were getting ready equipment to be run sixteen hours a day?

A. Yes, that is, depending upon the other equipment being installed.

R. D. Q. 436. What cap production would, say, an eight-hour day produce, what production?

A. An eight-hour day would take care of probably less than 50 per cent. of our entire spot production.

R. D. Q. 437. Give me some idea of what 50 per cent. of your spot production would have been at that time when you got this equipment, roughly, if you can, as accurately as you can?

A. 50 per cent. probably would be about, I would say about forty to forty-five thousand gross.

R. D. Q. 438. Over what period, a day, a month or a week?

A. A day.

R. D. Q. 439. 45,000 gross a day?

A. Forty to forty-five, that is, in our peak demand, peak production.

R. D. Q. 440. So if you operated this equipment eight hours a day that you were getting, you could produce at the most from it 45,000 gross a day?

A. That is right.

R. D. Q. 441. Now, you have testified with reference to [fol. 554] certain Johnson machines. You recall some Johnson machines being bought?

A. You mean spot machines or assembly machines?

R. D. Q. 442. Spot machines.

A. Yes, I do.

R. D. Q. 443. Were any Johnson machines ever used in the Crown Cork & Seal Company in the United States, I mean center spotting machines for center spotting caps?

A. You mean subsidiaries of Crown Cork & Seal?

R. D. Q. 444. No, in your plant at Baltimore, were any Johnson machines ever used, Johnson center spotting machines?

A. No. We tried, as I stated before, two machines that were sent to Toronto, bought by Toronto, and made sure that the spot was cut clean and the method was, it would

stay on, and then we shipped them. but we have not produced any crowns with them.

R. D. Q. 445. Were those machines with which you are familiar and shipped by Johnson to Baltimore, simply shipped there and then tuned up and sent direct to Toronto?

A. That is right.

R. D. Q. 446. You testified you were up in Toronto a short time ago and that they were using,—or some time ago; when was that?

A. That was about two years ago.

R. D. Q. 447. What has happened to those Johnson machines that were shipped up there?

A. I haven't any idea.

R. D. Q. 448. Were they in use in Toronto?

A. No, they were not using them up there.

R. D. Q. 449. What were they using in Toronto at that time?

A. They were using a similar machine as this exhibit over here.

R. D. Q. 450. In other words, later you were able to furnish them machines of your own manufacture from Baltimore [fol. 555] more, is that correct?

A. That is right. When we were able to produce them, before we were so busy we could not touch anything like that, and when we were able to produce them we sent them the other machines. I suppose they cast aside the others, I suppose they were cast aside, they were not operated.

R. D. Q. 451. You know they were not in operation?

A. They were not in operation.

R. D. Q. 452. Referring to this machine that was part of the equipment of the Crown Cap Company that Crown Cork & Seal bought some time ago, and more particularly to that combined machine for putting the cork in the same machine with the spots, where have you got that down in the plant at Baltimore?

A. Why, it seems that it was shipped very recently from Brooklyn up here down there, and when I was down, that was before I left Baltimore, I saw it in the receiving department downstairs where they received the goods in the original, in the crate; it was not put up.

R. D. Q. 453. Has it ever been mounted for operation of any kind?

A. No, I am sure of that.

R. D. Q. 454. The last time you saw it it was crated?

A. It was on skids, I do not mean to say that it was entirely boxed up, it was on skids.

R. D. Q. 455. Yesterday you identified certain blueprints, Plaintiff's Exhibits 47, 48 and 49, three envelopes. When were these particular blueprints made, the prints, and explain the circumstances of how you came to make them?

A. The prints were made not so awful long ago.

R. D. Q. 456. And at whose request?

A. At Mr. Fustings' request.

[fol. 556] R. D. Q. 457. Do you know what Mr. Fusting wanted them for?

A. Yes, I understood he wanted them for testimonials, I understood.

R. D. Q. 458. When you made those prints, did you have anything to do with the getting out of the original drawings in your files from which the prints were made?

A. The majority of the drawings were easily located by the blueprint boy at the vault.

R. D. Q. 459. And did you check them yourself?

A. Yes, I had to go down, however, to make sure that we did not miss any.

R. D. Q. 460. Do you recall bringing those original drawings with the blueprints to my office last Spring or late last Fall?

A. I do.

R. D. Q. 461. I hand you a container. Will you state what it contained when you last examined it at least?

A. Upon the request of Mr. Fusting to take the original along I procured this thing and I had the boy put them in.

R. D. Q. 462. And those are the original drawings from which the blueprints were made?

A. Yes.

R. D. Q. 463. And have they been in your possession ever since they were made?

A. They have been in our possession in the vault. We carry all prints in the vault, which is a fireproof vault. These are all the drawings. These are the originals of those prints.

Mr. Darby: I offer the drawings presented by the witness in evidence as a plaintiff's exhibit.

(Marked Plaintiff's Exhibit 63 in evidence.)

It is stipulated by and between counsel that the drawings [fol. 557] may be withdrawn by plaintiff's counsel; subject to inspection by defendant's counsel on request.

R. D. Q. 464. I understand that these drawings you have here were merely selected by me as typical of drawings which represented the parts here and are not drawings of the complete machine?

A. Yes, the drawings are not to take care of the entire machine. These are only in connection with the spotting attachment.

R. D. Q. 465. Do you recall when you brought some drawings over to my office with dates that said superseded and that I asked you to go back and get some original drawings which were not superseded?

A. Yes, I think there are some right here now. Standard drawings that are used today.

R. D. Q. 466. With reference to any drawings that are marked "superseded" will you state whether or not the parts of spotting machines such as are in Plaintiff's Exhibit 46, were actually made and used in machines, parts from these drawings, any of which may be marked superseded?

A. They were all used.

R. D. Q. 467. Parts of all these drawings no matter how they are marked were used in machines, is that right?

A. Were used in machines, yes.

[fol. 558] WILLIAM F. WAGNER, called as a witness on behalf of the plaintiff, in rebuttal, having been duly sworn, testified as follows:

Direct examination.

By Mr. Scull:

Q. 1. Where do you reside?

A: Philadelphia.

Q. 2. What is your occupation?

A. Letter carrier.

Q. 3. Were you ever employed by the American Cork & Seal Company of Philadelphia?

A. Yes.

Q. 4. When?

A. Well, in the latter part of '12 and the early part of '13.

Q. 5. And how do you fix that time?

A. That was the first job I ever had and I was working just before I was 16.

Q. 6. When were you 16?

A. I would be 16 on the 25th of December, 1912.

Q. 7. You were then 16 when you went to work for this concern?

A. No, I was not 16 yet.

Q. 8. Within a very few months?

A. Before I was 16.

Q. 9. You were there at any rate on your sixteenth birthday?

A. Yes.

Q. 10. What was the business of that company?

A. They made regular bottle caps, I guess you would call them.

Q. 11. That is just a tin shell with the cork discs in them?

A. Yes.

Q. 12. And was it composition cork or natural cork?

A. I believe they used both at that time.

Q. 13. Was there a man there by the name of Keller at that time?

A. Yes.

Q. 14. What was he doing?

[fol. 559] A. I don't know his capacity, I believe he was plant superintendent, but I am not sure.

Q. 15. Was there any work done on putting spots on crown corks while you were there?

A. Well, they had two machines there that they called the Keller machines on which they used a block tin spot.

Q. 16. Will you just describe the kind of spot that they were trying to make, will you?

A. Well, the crown had a rubber disc and the center was a block tin which was then soldered fast. They used solder to solder the block tin center in.

Q. 17. I show you a number of caps in a box marked Exhibit 19 and I ask you whether or not those are the things that you have just described?

A. Well, they look somewhat like it, it has been a long time since I was there and saw the others, but these look as though they may be the same or at least similar to them.

Q. 18. Now I show you a patent to Keller 1,081,505 and I ask you to look at the drawings, particularly the first three figures and state whether or not according to your recollection those drawings look something like the machine you have been telling us about?

A. Yes, I believe they are the Keller machines all right, that they had at that time.

Mr. Scull: I offer a copy of the Keller patent 1,081,505 in evidence.

(Marked Plaintiff's Exhibit 64 in evidence.)

Q. 19. Now you say that in this Keller machine the center block tin part was soldered to the shell?

A. Yes.

[fol. 560] Q. 20. And to what extent was that done, how many caps were made while you were there?

A. Very few, very few.

Q. 21. Was there any difficulty in the operation of the machine?

A. Considerable.

Q. 22. What was it?

A. There was considerable trouble with the heat in the final stage which was for the soldering of them in, either the iron was cold or the solder would not melt or the iron was hot and it would burn through the block tin. There was considerable trouble.

Q. 23. Were any of those caps sent away so far as you know?

A. You mean sold?

Q. 24. Yes.

A. Yes, but very few though, I know they did not operate very much.

Q. 25. Was the machine operating continually while you were there?

A. No, sir.

Q. 26. I show you a copy of a patent to Bartlett No. 993,288 which is assigned to the American Cork & Seal Company and I ask you to look at the drawings of that machine and state whether or not you saw any such machines as that when you were with the American Cork & Seal Company?

A. No, I don't believe I ever saw one of those in my time there.

Q. 27. Did you see any attempt, while you were there with the American Cork & Seal Company, to use a cement or paste to hold in these block tin pieces, instead of soldering?

A. No, sir.

Q. 28. Since you left the American Company have you worked for any other crown cork company?

A. Yes.

Q. 29. Which one?

A. Well, I worked for one that was known as the Penn Cork & Seal Company in Philadelphia.

[fol. 561] Q. 30. When was that?

A. Well, I just couldn't say when that was. That would be several years after I left the American.

Q. 31. Any others?

A. I did work for the Standard Crown.

Q. 32. For how long?

A. For five years.

Q. 33. When was that?

A. That would be about 1916, I imagine, to 1921.

Q. 34. And were either of those companies making spot crowns while you were with them?

A. None, no, sir.

Cross-examination.

By Mr. Warland:

X Q. 35. What was your position when you went to work at first for the American Cork & Seal, when you were sixteen years old, what did you do?

A. Most anything; I didn't really have any particular position.

X Q. 36. You were working in the factory or in the office?

A. In the factory.

X Q. 37. Doing what?

A. Well, cutting tin, running punch presses, working on these machines, helping to process cork, most anything that they found for me to do.

X Q. 38. You had no particular charge of these machines?

A. I just worked on them when I was told to, that is all.

X Q. 39. When you worked on them they were making stoppers with a metal center spot and rubber ring?

A. Yes.

X Q. 40. Did you ever use anything else besides rubber?

A. No, sir.

X Q. 41. And they were selling them to a certain extent right along?

[fol. 562] A. I wouldn't say that; they made very few of them, so they couldn't have been selling very much.

X Q. 42. What do you call very few?

A. I do not believe that we ever made an order of more than forty gross.

X Q. 43. But they did make several orders of forty gross?

A. I guess so, in my time there was very few, they didn't run much.

X Q. 44. You didn't know anything about the patents at that time?

A. No, sir.

X Q. 45. You were not shown the patents?

A. No, sir.

HORACE M. CUSHMAN, called as a witness on behalf of the plaintiff, in rebuttal, having been duly sworn, testified as follows:

Direct examination.

By Mr. Darby:

Q. 1. Where do you reside?

A. In Millis, Massachusetts.

Q. 2. What is your employment?

A. Factory superintendent of Cliquot Club Company.

Q. 3. The Cliquot Club Company, which makes the Cliquot Club Ginger Ale?

A. Yes, sir.

Q. 4. How long have you been employed by the Cliquot Club Company?

A. Oh, since 1893, about forty-two years.

Q. 5. What kind of crown caps does the Cliquot Club use on its ginger ale?

A. Paper spot, the Crown Cork paper spot.

Q. 6. Where do you purchase it?

A. From Baltimore, the Crown Cork & Seal Company, Baltimore.

[fol. 563] Q. 7. I hand you a box marked Plaintiff's Exhibit 28, and I call your attention to the crowns therein;

will you state whether or not they compare, how they compare to the crowns that you are using, referring particularly to the dark color paper ones?

A. Those are the ones there that we are using.

Q. 8. The dark color?

A. The dark color.

Q. 9. Do you recall how long the Cliquot Club Company has been using these crowns of Plaintiff's Exhibit 28?

A. About late in 1929 that we got some of those and tried them out.

Q. 10. Why did you try out this type of crown, do you know?

A. The old cork, natural cork crown, got so it was dirty, dusty, and if the goods were put up any length of time it got soft, would not hold, caused a lot of leakers, also you got a corky, woody taste after it had been up for a certain length of time.

Q. 11. What success did you have with your tests on these crowns?

A. We had good, we had no corky flavor.

Q. 12. I am referring to Plaintiff's Exhibit 28, these paper spot crowns?

A. Yes.

Q. 13. How long did you test them?

A. We tested them for about six months before we began to use them, and when we opened up the goods they were in good shape, no bad flavor or odor, and plenty of gas.

Q. 14. As I recall, when I talked to you about a year or two ago, you had some bottles that had been there for some time since the time of the test, and you opened them; did you preserve those caps?

A. Yes, sir.

Q. 15. Have you got them with you?

A. Yes, sir.

[fol. 564] Q. 16. Will you produce them, please?

A. (Witness produces caps.)

Q. 17. What was the condition of the contents of the bottles which you opened which bore these caps you have produced?

A. There was plenty of gas, and the goods kept better than we ever had any goods keep before with the ordinary crowns.

Q. 18. When you say "ordinary crowns" you mean natural cork crowns?

A. Natural cork.

Q. 19. How long had these bottles been under test in storage?

A. They were put up in July, 1931, and opened in February, 1935.

Q. 20. And the contents were in perfect condition?

A. Perfect condition; every bottle among the three bottles.

Mr. Darby: I offer in evidence the three crowns produced by the witness.

(Marked Plaintiff's Exhibit 65 in evidence.)

Q. 21. What was the condition of the crown when it was opened?

A. Good.

Q. 22. Do you recall?

A. Good.

Q. 23. You particularly observed at my request the condition of the crowns when you opened them?

A. Just as good as it was when we put it on.

Q. 24. With the paper spot?

A. With the paper spot; all the difference was there was a groove in it where it fitted over the top of the bottle, which you could not help.

Q. 25. You were speaking of trouble you had with natural cork crowns; what did you do personally about these [fol. 565] troubles? Did you tell anybody you were having them?

A. Yes, I complained to the head officials and we tried to blow the dust out with a machine that we bought.

Q. 26. You bought special equipment for getting the dust out of the natural cork crowns?

A. Yes, a machine made in Boston. And then we tried to wash them. Then we bought an equipment to go on the crown chute to see if we could suck the dust out, but that wasn't successful.

Q. 27. These natural cork crowns with which you were having trouble were purchased from whom?

A. Crown Cork & Seal Company. We tried some from New Process, also a number of years ago from the Armstrong Cork Company.

Q. 28. Did you have any better success with the crowns from these other companies?

A. Not a bit, no, sir.

Q. 29. When you complained to the officials of your company did you get any effective response during that period you were having trouble?

A. Well, there was nothing they could do, we could not get anything different at that time.

Q. 39. You wanted something different but could not get it?

A. Wanted something different.

Cross-examination.

By Mr. Warland:

X Q. 40. I understand that your factory is at Millis, Massachusetts?

A. Yes, sir.

X Q. 41. How long has it been there, has it always been at Millis, Massachusetts?

A. Always been at Millis, Massachusetts.

X Q. 42. And you have been in Millis Massachusetts, for how long?

A. I have lived there for around fifty years.

[fol. 566] X Q. 43. Did you know of a company there known by the name United Cork & Seal Company?

A. I do not quite understand.

X Q. 44. Did you know of a concern in Millis, called the United Cork & Seal Company?

A. Yes.

X Q. 45. And they were making center spot crowns, were they not?

A. I do not remember of their ever making any.

X Q. 46. You never went to their plant?

A. I never visited their plant.

X Q. 47. You are acquainted with Mr. McManus, aren't you?

A. I know Mr. McManus, yes.

X Q. 48. You met him when he was at Millis?

A. Yes, sir.

X Q. 49. About 1907, 1908 or 1909, something like that?

A. Yes.

X Q. 50. Do you know what he was doing there at the time?

A. Yes; he was with the United Cork & Seal Company.

X Q. 51. He was making bottle cap closures in those days for the United Cork & Seal Company?

A. Yes, sir.

X Q. 52. Didn't you ever hear of any center spots prior to those that you heard from the plaintiff?

A. No, sir, I never did.

X Q. 53. That is the first time you ever heard of a center spot of any kind?

A. Only tin center, aluminum center, tin center.

X Q. 54. You had known about those for a long while?

A. Yes, sir.

X Q. 55. Did you try those for ginger ale?

A. They are not satisfactory for ginger ale.

X Q. 56. Did you try them, I said?

A. No, sir.

[fol. 567] JOHN J. DARBY, recalled on behalf of the plaintiff, in rebuttal, having been sworn testified further as follows:

Direct examination.

By Mr. Scull:

Q. 98. Yesterday in your examination you referred to certain caps and said that you would produce them. Have you those caps now?

A. I have.

Q. 99. What are these caps?

A. In connection with the Warth-Lange Interference 60931, involving Claim 2 of the Lange patent No. 1,779,884, it became evident that the interference would be contested and I made a trip to Baltimore to ascertain more definite information than I previously had available as to the situation with respect to what the Crown Cork & Seal had previously done along the same lines. Since the interference had started it had changed in character considerably and only one claim remained—the claim speaks for itself—and that was Claim 2. I discussed that claim with Dr. Warth and tried my best to explain what it meant, and he made the remark that he doubted whether it was new. I asked him what he meant by that—

Mr. Warland: I object, your Honor.

The Court: Sustained.

The Witness: I discussed the matter with Dr. Warth and there was some conversation whether the subject matter of the interference as it then existed was new. In that con-[fol. 568] nection he pulled from the drawer of his desk a box of caps. I recalled the incident very distinctly and the date was February 12, 1932. I asked him what the caps were and he said that he was pretty sure they were caps along the line that he had made many years before.

Mr. Warland: I object to Mr. Warth's testimony being given through this witness, your Honor.

The Court: Yes, it is all hearsay. Objection sustained.

The Witness: I took these caps in order to ascertain whether they corresponded with the subject matter of the interference, and I had tests run and I found that they did. The tests as they were run and the caps were put in this original box and here are the papers and the caps that were tested. I then made an effort to ascertain whether the Crown Cork & Seal Company could prove sales; I could find no conclusive proof which convinced me that we could prove actual commercial use. Therefore, I did nothing more than put this aside with this evidence, and I let the matter continue. These are the caps and these are the reports.

Mr. Scull: I offer in evidence the box of caps and the papers in the box.

(Marked Plaintiff's Exhibit 66 in evidence.)

Q: 100. Now, you were asked also yesterday as to the dates or the date of conception alleged in the preliminary [fol. 569] statement in 1915, and your connection with that. What explanation have you in connection with such allegation?

A. Prior to the preparing of the preliminary statement I discussed the matter with Dr. Warth and it also may have been with others. I ascertained that as early as 1915 in connection with the manufacture of materials such as I have here, which is Exhibit 61, certain experimental tests had been run which, instead of using an ordinary glue adhesive, there had been used gutta percha dissolved in carbon tetrachlorate. I found a quite large number of these caps had been made up.

Mr. Warland: I object to what he learned.

The Witness: On the basis of that I prepared the statement.

Mr. Scull: Mr. Warland, you asked him what was the basis for his statement yesterday.

Mr. Warland: I asked him if he put in a statement, and he said he did.

The Court: He said he signed the statement and he signed it on the basis of information. That is as far as you can go. What he learned is not evidence.

Mr. Warland: I move that it be stricken out.

The Court: That is what he has been telling right along. I let him say that he prepared that statement on information, but that is as far as you can go.

Mr. Scull: Can't I bring out the information on which he prepared it?

The Court: No. He can say who he received the information [fol. 570] from, but he is not entitled to say what the information was. I let him say that he prepared it on information simply to differentiate from telling us that he prepared it on his own knowledge. He may state the source of information, but not what the information was.

Cross-examination.

By Mr. Warland:

X Q. 101. As I understand it, the substance of your testimony is that the issue of this interference No. 60931 was too broad is that right?

A. Do you want my opinion on the matter?

X Q. 102. You said yesterday it covered a lot of things and you thought it was too broad.

A. At that time I reached that conclusion on the basis of investigation that I had made.

X Q. 103. That was your opinion, that the issue was too broad to cover the actual subject of the investigation?

A. I felt so at that time, but I had no proof on which I would want to go into court and rely solely on. I had nothing, but that box of caps from Dr. Warth's desk.

X Q. 104. Yet, despite that fact, that that issue, in your judgment was too broad, you fought that interference all the way through the Patent Office and fought it through the court here to get possession of Lange's testimony, and then you got this patent 1,899,783 issued as a result of that interference?

A. That is not a correct statement.

X Q. 105. It is in the record. Doesn't the record show that you asked certain things be allowed because of the decision of the Board?

[fol. 571] A. We never took out claims in any way corresponding, in my judgment, to the claims in that interference. We abandoned the claim. Furthermore, we did not fight the interference through the Patent Office. After Lange had taken his testimony we made every effort that we could to have it filed in the Patent Office as a matter of public record.

X Q. 106. And in spite of that effort you had a judgment by default taken?

A. At that time we were trying to have Lange file his testimony.

X Q. 107. Please answer my question. Didn't you take a judgment by default against Warth in the Patent Office?

A. To conclude the interference.

X Q. 108. And then patent was issued as a result of that decision?

A. No.

X Q. 109. This application No. 360,895, on which this interference occurred, was that abandoned altogether?

A. I would have to look at the file of the application to recall it. I cannot tell you that the entire application was abandoned, but I know the subject matter was.

X Q. 110. Well, here is the file.

A. I believe that that application was abandoned. (Witness having examined file.)

X Q. 111. Don't you know?

A. Yes, it would indicate it, and it is my recollection that it was.

X Q. 112. Well, is that interference one of the litigations that is mentioned in this advertising that I showed you yesterday?

The Court: Didn't you ask him that yesterday?

Mr. Warland: Yes, I did, your Honor.

The Witness: I really don't know.

[fol. 572] X Q. 113. Now, what was in Lange's testimony that caused you to make an affidavit stating that your prior affidavit was wrong?

A. As I told you yesterday, I received that testimony perhaps a year and a half ago, and it came in a brown envelope and was put on my desk, and I have never read it

since. Now I will be glad to read it and tell you, if you will permit me the time.

X Q. 114. You thought it was of sufficient interest to dissolve the interference?

A. I did indeed.

X Q. 115. And you made a motion to dissolve the interference?

A. After Lange made a motion, supplemented by these caps, it convinced me that my client should not spend more money on that subject.

X Q. 116. And was the subject matter any different than that statement made by Warth where he said that it had been used commercially in 1916?

A. I drew a distinction between the two. I am not permitted to explain what we had in mind as to that statement. I know there were a considerable number of caps made in accordance with what we had in mind.

X Q. 117. Warth says in his preliminary statement that the invention was reduced to practice by manufacture and use of the material of the character defined in each claim on or about the 1st day of June, 1915, at Baltimore, Maryland. Material of the character defined in each claim has been made in large quantities since April of 1915.

A. That was based on information given to me at that time.

X Q. 118. Why did you try to get out a patent on a subject that had been in commercial use since 1915?

A. I did not know that; I had no information that any [fol. 573] thing of the nature had been in commercial use until 1932, when I made the test in Dr. Warth's laboratories. It was a matter of distinct surprise to me.

X Q. 119. You said in your affidavit I showed you yesterday that Lange's testimony was a great surprise to you.

A. It was.

X Q. 120. Did Lange's testimony show any greater use or more use than was shown in the preliminary statement?

A. Yes, because Lange admitted—I am speaking from recollection—extensive commercial use of the things that I did not know about.

X Q. 121. What were those things that were used commercially? They were what, varnished paper?

A. Do you want me to testify from recollection or will you let me read the testimony to refresh my recollection?

X Q. 123. Will you look at that testimony. What exhibit number is that?

A. Defendant's Exhibit TTTT. Do you wish me to read that testimony through?

X Q. 124. Sufficiently to answer my question, what was it that caused you to move for a dissolution of interference over the statements contained in Warth's preliminary statement?

The Court: Suppose you ask him anything else you have to ask him, and let him do that during the lunch hour.

X Q. 125. Will you glance through that sufficiently to answer the question after luncheon?

A. I will be very glad to.

X Q. 126. Coming back for a moment to this interference No. 66,201, Warth vs. Johnson—

A. May I have the record of it, please?

[fol. 574] X Q. 127. Have you been able to produce the original assignment had from Johnson to Crown Cork & Seal Company?

A. Frankly, I forgot to ask Mr. Fusting last night. I will see him at lunch time; he is not in the court room now, and I will be very glad to do it.

X Q. 128. Will you please see that it is produced before the trial is over?

A. I certainly will.

X Q. 130. You made an affidavit in this interference of Warth vs. Johnson, 66,201, dated April 2, 1934, didn't you?

A. That is correct.

X Q. 131. You state in that affidavit that you have been instructed by the Crown Cork & Seal Company to bring suit against Ferdinand Gutmann & Company.

A. Right.

X Q. 132. "And that one of the patents to be included in said suit is reissue 19,117, Warth," and you also said that "The Warth application in interference is divisional with respect to the said reissue patent 19,117, and that it is therefore desirable to include in the prospective suit the subject matter in interference, as well as the said reissue patent.

"That if priority is awarded Warth in this interference, as deponent believes should be done, the patent resulting from the Warth application in interference will be included in said suit.

"That the said Ferdinand Gutmann & Company is, in deponent's judgment, infringing the rights of Warth's assignee under the said reissue patent, and that the said assignee is being seriously damaged by the use of the method covered by said patent, as well as use by the said Ferdinand Gutmann & Company of the method involved in interference. [fol. 575]" "That deponent has been instructed by the assignee of the Warth application to expedite in every way possible the issuance of the patent on the Warth application in interference, and will do so not only throughout this interference but in any subsequent ex parte prosecution of the Warth application."

Now at that time the Crown Cork & Seal Company owned the Johnson patent by assignment which had the same three claims which are in this patent 1,967,195, didn't it?

A. What is the date of that affidavit?

X Q. 133. April 2, 1934.

A. That is correct.

X Q. 134. Why didn't you sue Gutmann under the Johnson patent 1,872,578 which had the same method claims in issue as are in the patent 1,967,195?

A. The reason is that when the interference was declared with Johnson, as I said yesterday, I discussed the matter with Johnson's counsel after an agreement had been reached to settle, and Mr. Seifert and I felt that——

The Court: We went over that yesterday.

Mr. Warland: I asked him why he didn't sue.

The Court: He isn't asking you that, he is only asking you why you didn't sue Gutmann on that patent.

The Witness: Because the Patent Office had not yet determined whether these claims should remain in the Johnson patent or the other patent.

X Q. 135. But you had the claims in the Johnson patent, you owned the Johnson patent; what difference did it make [fol. 576] what the Patent Office said, as long as you owned the patent?

A. I felt there should not be any more litigation than necessary, and that the question should be determined at the time we went into court as to where the claims properly belonged.

X Q. 137. Well, you got that settled when you got an assignment from Johnson?

A. No, sir, we did not.

The Court: He told you that the assignment was held in escrow in the Patent Office, and they left it to the Patent Office to determine the question. That was his testimony yesterday.

X Q. 138. Was there any reference anywhere in these interference proceedings or in the Johnson application for patent 1,967,195 which shows that this assignment was left in escrow or that the Patent Office had knowledge of it?

A. No, but—

X Q. 139. Just answer yes or no, there was none?

A. But Mr. Seifert, Johnson's attorney, and I, personally took the responsibility of informing everyone in the Patent Office who had anything to do with the matter of the precise situation.

X Q. 140. But there is nothing anywhere in the record to show that?

A. There is not.

X Q. 141. Mr. Seifert did not file a brief on behalf of Johnson at the final hearing?

A. I do not remember; the record will show that.

X Q. 142. The record shows that he did not, that was all arranged between you and Mr. Seifert, to get this priority [fol. 577] awarded to Warth, so you could get the date of January 7, 1927, was it not?

A. That is not correct. We submitted the matter to the Examiner of Interferences, and stated it was a matter of utter indifference where the claims went, as long as they went where they belonged, because we owned both patents, both the application and the patent.

Met pursuant to recess at 2 p. m.; present as before.

JOHN J. DARBY, resumed the stand.

Cross-examination.

By Mr. Warland continued:

Mr. Warland: I offer in evidence an affidavit of Mr. Darby, dated April 2, 1934, in Interference No. 66,201.

(Marked Defendant's Exhibit DDDDD in evidence.)

X Q. 143. When you made this settlement with Mr. Johnson, you knew, of course, of the preliminary statement of Johnson and the dates alleged therein?

A. I did.

Mr. Warland: I offer in evidence the preliminary statement of Johnson in Interference No. 66,201.

(Marked Defendant's Exhibit EEEEE in evidence.)

X Q. 144. Have you had an opportunity at lunch to glance through that Lange testimony?

[fol. 578] A. I have done the best I can with the 165 pages of it.

X Q. 145. Well, briefly, what material or what structure is shown there? What was the testimony that caused you to move to dissolve?

A. As I said before, before Lange took this testimony I had located those caps which showed that we had in our possession caps made of black alkali paper, as it was then known, united by Burgundy pitch to the cork, and of course was always made in strip form, so my entire cross examination of Mr. Lange was directed, as the testimony shows, to the only other limitation in the claim in interference which we could not prove, namely, the precise character of the varnish on the paper, because the Crown Cork & Seal Company was buying its varnish from the other side, and we had no way of knowing what Lange had put in the varnish. The record finally shows at the end Lange admitted—first he produced a letter which showed that at least for four years he had been offering to the trade a paper with an alcohol resistance up to 40 per cent., and had sold it commercially to cap manufacturers and it was used in this way. He admitted furthermore that he had been in the Crown Cork & Seal Company's plant and had seen the operations that I had been informed of, including the uniting of the paper to the Burgundy pitch, which is a waterproof adhesive, and finally admitted that he had tested himself a large number of other papers that he had sold for five or six years, and found their resistance to be at least 10 per cent. The claim had originally been interpreted to call for resistance to alcohol in some way, and that is what my examination [fol. 579] consisted mostly of and I had been out to Pittsburgh, and I had found at Pittsburgh, because I made a special trip out there to the Pittsburgh Insulator

Company to find out the nature of the varnish on the paper that they were furnishing the Crown Cork & Seal Company. That trip was made at about that same time.

X Q. 146. As I understand you, testimony as to the character of the paper and the varnish caused you to file a motion to dissolve?

A. Absolutely, because we had already every other element.

X Q. 147. And then when he would not file the testimony—

A. We tried to compel him to file it.

ALBIN H. WARTH, called as a witness on behalf of the plaintiff, in rebuttal having been duly sworn, testified as follows:

Direct examination.

By Mr. Scull:

Q. 1. Where do you reside?

A. Albin H. Warth, Baltimore, Maryland.

Q. 2. You are the Albin H. Warth who was mentioned as a patentee in some of the patents here in suit, are you not?

A. Yes.

Q. 3. You are employed by the Crown Cork & Seal Company, are you?

A. I was employed by the Crown Cork & Seal Company in May, 1916.

Q. 4. And you have been continuously in their employ?

A. And its predecessors, and I became the chemical director around 1917. I might say that my education was [fol. 580] obtained at Columbia University, from which I received the degree of Bachelor of Science in 1907. I am a Fellow of the American Institute of Chemists, and I am also a Fellow of the American Association for the Advancement of Science.

Q. 5. Subsequent to your graduation just what positions did you have?

A. Subsequently to my graduation I took a position with the Lackawanna Steel Company at Buffalo, New York.

Q. 6. As a chemist?

A. As a chemist. Following that I took a position with the Proctor & Gamble Company at Port Ivory, Staten

Island, as a chemist. Then I became the chief chemist of J. L. Hopkins & Company, wholesale druggists. Following that I went with the General Electric Company at Lynn, Massachusetts, engaging there in research work. After leaving the General Electric Company I became chief chemist of the Celluloid Corporation at Newark, New Jersey. From there I went to the Crown Cork & Seal Company, where I have been since then.

Q. 7. Now, just briefly what have been your duties while you were employed by the plaintiffs here.

A. Well, since I have been with the Crown Cork & Seal Company I have come in contact with every phase of the industry—

The Court: You mean with the plaintiff and its predecessors?

Q. 8. The plaintiff and its predecessors.

A. Every phase of the industry. I have had problems in connection with the lacquers that are used for lacquering [fol. 581] the tin for the caps, the binders for the composition cork, the assembling of the component parts such as the shell and the cork discs; and the adhesive used for this purpose, also with facing materials, including the facing materials that are used in the spot crowns. I have also had pretty intimate touch with the bottling industry, the beverage industry, and the uses which are made of these caps.

Q. 9. In your laboratory do you make tests for the utility of the various products of the Crown Cork & Seal Company?

A. Yes, we have quite a large laboratory organization for that purpose.

Q. 10. When did you first conceive the idea of using a nitrocellulose adhesive for spot crowns?

A. I first conceived the idea about 1926.

Q. 11. And what, if anything, did you do at that time about that?

A. Well, I might say that in my experience with the Celluloid Corporation, where I had been continually dealing with nitrocellulose and nitrocellulose lacquers and so forth, it was sort of an ambition of mine to produce a thermoplastic coating material for tin-foil that would be superior to gutta percha, which gutta percha is not entirely satisfactory. And my idea was to combine nitrocellulose with resin.

To do this I made up, oh, a number of resin solutions, I particularly recall using Dammar gum. They were natural resins. I also used gum elemi and sandarac, and copal and various gums, but I found it was a problem there of getting the proper proportions of the gum and nitrocellulose. Many of these experiments were failures, for instance, because of the incompatibility of the gums and nitro- [fol. 582] cellulose, they would not mix. Some of them would mix, but would separate out overnight. However, I got certain mixtures that were seemingly satisfactory, that I applied to foil, coated on foil, and then I would take these strips of foil and bring these down generally and give them to Mr. Goebel to run on the machine to make a small number of crowns. But the resultant spot crowns were not entirely satisfactory. In other words, I mean that they weren't sufficiently better than gutta percha to warrant going into the manufacture at that time unless I could make a still further improvement.

Q. 12. Did you turn to anybody else for material in connection with these experiments?

A. Yes, I recall very distinctly in 1926 contacting a man by the name of Fisher who was with the du Pont Company. Fisher came down there, and I talked about what I wanted, and he supplied various samples. Sometimes, these samples were used as such, and I did not get quite satisfactory results and I would mix in a little more nitrocellulose or a little bit more resin to see whether I could improve the result, and I got at least good enough results to indicate that if the material was sufficiently improved it would be eventually successful.

Q. 13. Now what was the idea of combining nitrocellulose and resin, why did you have that in mind?

A. In the first place in such a coating material or cement I wanted a resin and then I wanted nitrocellulose as a constituent and then I wanted this combined material to be thermoplastic. The reason I wanted nitrocellulose was that I realized that nitrocellulose had a good film-forming [fol. 583] characteristic and it was necessary to have a material which you could spread on the foil in a very thin film, which upon drying would be rendered tacky when in contact with heat and also it was necessary for me to have a material, a coating material, that would enable me to wind up a spool of this tin-foil, otherwise it was useless.

Q. 14. Now is nitrocellulose itself a thermoplastic?

A. Nitrocellulose itself is not a thermoplastic, and I realized that very early because when I coated foil with nitrocellulose and tried it, it was absolutely devoid of any thermoplastic adhesive qualities.

Q. 15. On the other hand, the gums are thermoplastic?

A. On the other hand, the gums are.

Q. 16. Now what do you mean by film-forming characteristics of nitrocellulose?

A. I mean that the nitrocellulose imparts a sort of a horny characteristic to the material that sort of kills the tackiness. Now when you use gum alone, which I tried out in 1926 or prior, the film would become very, very brittle and fracture off and then I tried to improve that gum by adding amounts of certain vegetable oils to sort of plasticize the gum. Well, I could improve my coating and I made a perfectly good-looking spot crown, but when I saw those crowns made for three months and I happened to go back to my samples I found there was not a sufficient amount of stick between the foil and the cork to warrant their adoption and therefore I needed something that was much more permanent.

Q. 17. It was for that purpose that you turned to nitrocellulose?

A. Yes.

[fol. 584] The Court: You used that as a base?

The Witness: I used the gum as a base and nitrocellulose in addition to it to form this film-forming characteristic.

Q. 18. I show you a letter which is Exhibit 55 and I ask you whether you wrote that letter and on the date that appears thereon?

A. Yes, I did. The date is November 19, 1926, and the letter is addressed to the superintendent of production machinery, G. Goebel.

Q. 19. And that letter refers to a product made by E. I. du Pont and which is suited for adhesive purposes and the further statement that this particular material has a nitrocellulose and gum base and is already thinned to a consistency that makes it easy to apply to paper or other material. Prior to that date, that is the date on this letter,

had you talked to Mr. Goebel about nitrocellulose and gum base material?

A. Yes, I talked to him and also showed him samples, as I stated before, and he ran some on the machine. He knew what I had. He said to me, "Boss"——

Q. 20. Never mind, at any rate you wrote him this letter?

A. The idea was to get this in commercial quantities, material of this kind.

Q. 21. And did you get this material that is referred to in Exhibit 55 and try it?

A. Yes, we did.

Q. 22. What was the result?

A. Well, we did not do very much with it. It was not as good as gutta percha and I abandoned that to continue gutta percha to adhere to the aluminum foil.

Q. 23. When did you next take up this adhesive of nitro-[fol. 585] cellulose and gum or resin for sticking spots to crowns, corks?

A. You mean take it up from the standpoint of thought or experimental work or conversation?

Q. 24. Either way, what did you do after 1926?

A. At various times when Mr. Foley called from the du Pont Company I asked for samples, whether they had anything better than what I had submitted to me before. I did not do anything active in the laboratory way. I had spoken to Mr. McManus about this nitrocellulose and resin thermoplastic adhesive but I did not do anything very active until January of 1932.

Q. 25. Now in the meantime had there been any activity in connection with your gutta percha sticking of spots?

A. Yes, great activity, especially when we got these orders from Anheuser-Busch. I went out to Anheuser-Busch in the latter part of 1926 and I sold them the idea of using an aluminum spot with a composition cork as a substitute for natural cork with which we were having quite a lot of trouble and we had to take back carloads of their natural cork to spot with aluminum. Then we were being faced with large production orders. Why, it seemed a practical thing from my viewpoint to combine this gutta percha to aluminum foil so as to have a one-strip material instead of feeding separate tissue and foil into the machine to be ultimately combined, and Mr. Goebel went ahead and built

such a machine and I remember that machine was in operation some time in 1927, early in 1927. The result of that combination was we were immediately able to step up our production and also able to do away with an operator at the machine, at each machine.

[fol. 586] Q. 26. Now continuing with this nitrocellulose, when did you first get some of this 4620 about which there has been testimony in this case?

A. Mr. Foley came into my office very early in January, I think it was in the end of the first week in January, with a sample.

Q. 27. What year?

A: 1932. He said, "I have something here which I think will greatly interest you. It may not prove good for your purpose but perhaps you will find it well worth trying out." I said, "I will try it out right away."

Q. 28. Did he tell you what it was, did he tell you the general composition?

A. He told me it was a nitrocellulose cement.

Q. 29. And had you ever talked to him before about your desire for that-kind of a cement?

A. Oh, frequently.

Q. 30. Go ahead.

A. Well, he turned in this sample of material, I took it out in the laboratory, and with the aid of Miss Stover—

Q. 31. Miss Stover is your assistant?

A. My secretary; we coated some foil, and I didn't coat very much of it myself, but she coated quite a lot of it and dried it. The first lot I believe we air-dried; we didn't heat-dry it, we dried it in the air and took it down to the machine, Miss Stover took it down to the machine, and after an hour or less brought the sample of the finished crowns up, and we looked over those crowns. They looked really good, and we started immediately on our bottling test.

I might say right here we never go into anything commercially without making rather extensive bottling tests; we have found that necessary by experience.

[fol. 587] Q. 32. And those bottling tests are on various kinds of liquid?

A. All of this work is done on the more difficult, that is, the highly charged carbonated liquid. We generally use Budweiser beer, which is pasteurized in the bottle afterward, where it gets a pressure of at least 75 pounds in the

bottle. And we use the highly charged waters, such as White Rock, and we use one of the standard pale dry ginger ales, which has a high pressure to it. And we store those bottles away, and it is customary to take a couple of bottles out every two weeks, and then in another week, and so on, to observe the results.

Q. 33. How long do you ordinarily carry on such experiments, six months, a year, two years, or what?

A. The experiments on beer are generally conducted for about a little over three months, and those on pale ginger ale about six months, and the charged water from six months to a year.

Q. 34. When you coated the material and made these tests did you coat anything else but foil?

A. Yes, we coated a good many materials through that year. We coated, for instance, we coated spot crown paper, that is a special varnished paper, and I believe we coated a shellac paper, we coated another paper, I have forgotten the name, something submitted by C. C. Stewart of Philadelphia, and there were several others.

Q. 35. And the tests that you started on ginger ale were made with metal-foil or with paper?

A. With—I do not recall.

Q. 36. I show you a number of letters headed "M. [fol. 588] Stover," addressed to Dr. Warth, dated January 20, 1932, April 12, 1932, April 20, 1932, August 19, 1932, a second one dated August 19, 1932, a letter dated August 25, 1932, and one dated October 20, 1932. Will you state first if you recognize those letters, and if so, just what are they?

A. All these letters relate to bottling tests that we conducted throughout the year of 1932, using this 4620 cement.

Q. 37. That is the nitrocellulose resin cement?

A. Yes. There is one letter here of April 20th, that is a letter that concerns costs. It has my original figures on it in figuring out the whole cost of the proposition.

Q. 38. That is, the cost of using this particular cement?

A. Yes.

Mr. Scull: I offer those letters in evidence and ask that photostatic copies be substituted for the originals.

(Marked Plaintiff's Exhibit 67 in evidence.)

Q. 39. Do those letters in Plaintiff's Exhibit 67 represent all the tests that were made during 1932?

A. No, they do not. They are largely memorandums that were made because, while Miss Stover was pretty careful to make her records, in many of the observations that I made I made no record except a mental one.

Q. 40. I show you a carbon copy of a letter signed A. H. Warth, dated May 11, 1932, addressed to J. W. Cleaveland of the duPont Company at Parlin, New Jersey. Did you write that letter and on the date which appears thereon?

A. Yes.

[fol. 589] Q. 41. By the way, what is your custom so far as the carbon copies of letters are concerned, in so far as signing them?

A. Well, I always sign the carbon copy right at the time that I sign the original. Of course, that signature would be on the date that appears thereon.

Q. 42. I note in that letter of May 11th you say, "The 4620 thermoplastic cement is active." What do you mean by thermoplastic cement?

A. The 4620.

Q. 43. Well—

A. Nitrocellulose and resin is thermoplastic cement.

Q. 44. What do you mean by saying that it is active?

A. By "active" I mean it is active as an investigation in the laboratory.

Mr. Seull: I offer that letter in evidence.

(Marked Plaintiff's Exhibit 68 in evidence.)

Mr. Seull: And I ask that a photostatic copy be substituted for the original.

Q. 45. Now, there has been some testimony here in reference—

A. By the way, Mr. Seull, I might say that I saw in that letter a little pencil mark under the word "active." I did not put that mark on there; that must have been put on by one of the attorneys.

Q. 46. I think probably it was. Now, there has been some testimony here as to a visit which Mr. Goebel and yourself made to the Waldron Company in New Brunswick, New

Jersey, in connection with coating machinery. Do you remember those visits?

A. Yes, I remember those visits.

[fol. 590] Q. 47. Do you remember when the first one was made?

A. Well, I couldn't recall the exact date; it was somewhere around April or May of 1933.

Q. 48. I show you a letter dated May 9, 1933, signed by A. H. Warth, addressed to John Waldron Company; does that refresh your recollection?

A. That is 1933.

Q. 49. Yes.

A. Yes.

Q. 50. This refers, does it, to the visit?

A. The contemplated visit within a week.

Mr. Scull: I offer this in evidence as a plaintiff's exhibit and I ask that a photostatic copy be substituted for the original.

(Marked Plaintiff's Exhibit 69 in evidence.)

Q. 51. Prior to this visit some time in May of 1933 to the Waldron Company what had been the results of the tests you had conducted on the use of this 4620 thermoplastic adhesive?

A. They were very satisfactory. As I stated before this strip material, this aluminum foil was coated in very large lengths in our laboratory and it was taken to the machine and put through the spotting machines. In 1933, I might say that my bottling tests were completed at the end of 1932 and early in 1933 I went to Mr. McManus to tell him that I was figuring on going ahead with equipment to coat this foil on a very large scale and in fact I asked him for \$8000 and he said right offhand go ahead.

Q. 52. He was familiar with the results of the tests?

A. He was familiar with the results of the tests.

[fol. 591] Q. 53. And this \$8000 that you had in mind was for coating machines?

A. The contemplated coating machines. I had not seen them yet.

Q. 54. And that size appropriation you assumed was to give you a coating machine with what capacity in reference to your spot production at that time?

A. Well, to give us a capacity of, oh I figure about a

carload a day with normal operation of the equipment.

Q. 55. That is to say you were really going on a very large scale?

A. A carload of spots per day, yes.

Q. 56. Now, the Waldron Company I understand is the maker of coating machinery?

A. Yes. I might say that we had investigated the market and I came to the conclusion that the John Waldron Company were the logical people to go to.

Q. 57. Did they have a machine that could be adapted for your purposes?

A. They had a machine which was adapted for our purposes and when we went over to run our experiment why everything over there was really satisfactory except the winding equipment.

Q. 58. There has been some testimony here about the width of foil that could be handled, do you remember anything about that?

A. I remember the foil that we had in stock I believe was too wide and we had to have a foil over there something like 17 inches wide to run through that equipment, so we were delayed a little bit in making these tests because we had to wait until the Aluminum Foil Company could ship the foil that we had ordered.

Q. 59. Now, this first visit to the Waldron Company, the foil was coated I understand with 4620?

[fol. 592] A. Yes, the foil was coated. I went over there and I supervised the time of travel and the heat required and the thickness desired. It was a sort of an experimental run that was made of one thickness and then another thickness and I think one or two trial temperatures and afterwards we loaded up all this wound foil and brought it back to Baltimore.

Q. 60. And did you make spots with them?

A. We did make spots with them. I might say that we had some trouble. Every time we changed the thickness of the coating we would have to stop the machine and then there would be quite a large width of foil uncoated and when we got the wound foil down in Baltimore and put it in the machine it would produce spot crowns for a number of gross and then there was no thermoplastic on the foil so we needed to get some more material and we made another visit for that purpose.

Q. 61. I show you a letter dated May 25, 1933, signed A. H. Warth addressed to John Waldron Company, and I ask you if you wrote that letter and on the date which appears thereon?

A. Yes.

Mr. Scull: I offer this letter in evidence as a plaintiff's exhibit, and I ask that a photostatic copy be marked.

(Marked Plaintiff's Exhibit 70 in evidence.)

Q. 62. Now, this letter refers to a possible second trip which you and Mr. Goebel were to make to the Waldron Company. Did you make such a trip subsequent to May 25th of 1933?

A. Yes.

[fol. 593] Q. 63. What did you do then?

A. We went right ahead with our next lot of foil because from our first experiment we knew just how much heat and what coating we wanted and we got a continuous length of foil and a very nice lot of material which was sent to Baltimore to be slit and we used that on the machine.

Q. 64. And was that all used in making spots?

A. You mean commercially?

Q. 65. I mean this material you brought back from the Waldron Company.

A. A very large part of it. We did mutilate some of that foil in our slitting because our slitting equipment was very crude.

Q. 66. I show you a letter dated June 23, 1933, and signed A. H. Warth and I ask you whether from that you can fix the approximate date at any rate of your second trip to the Waldron Company and second experiment there?

A. Yes, June 23, 1933.

Q. 67. And from this when would you say that the second experiment was carried on at the Waldron Company, approximately?

A. Oh, I would say within a week or two.

Mr. Scull: I offer this letter of June 23, 1933, in evidence and I ask that a photostatic copy be marked.

(Marked Plaintiff's Exhibit 71 in evidence.)

Q. 68. I show you what purports to be a memorandum dated July 28, 1933, signed A. H. Warth and I ask you

whether you wrote that memorandum on the date which appears thereon?

A. Yes, July 28, 1933.

[fol. 594] Q. 69. Now, what was the purpose of that memorandum?

A. Well, the purpose of that memorandum—I have all the data on this memorandum of the run we made on June 27, 1933, at the Waldron plant and I also have the estimated cost of coating figured down to the fraction of a cent per gross, using this 4620 material at a price of—well, I don't know, but I believe it was \$2.50 a gallon.

Q. 70. What was the purpose of estimating this cost of coating?

A. Well, it has been our policy—it has been my policy to get up such memoranda for the use of our executives and our cost departments and I believe a copy of this went to Mr. Goebel the very day it was made.

Mr. Scull: I offer in evidence this memorandum dated July 28, 1933, and I ask that a photostatic copy be marked.

(Marked Plaintiff's Exhibit 72 in evidence.)

Q. 71. Now, there has been some evidence here as to the placing of an order with the Waldron Company some time in August for the coating machinery and its supplying of that coating machinery to the Crown Cork & Seal Company. I assume you had nothing to do with the actual ordering of the machine?

A. I had nothing to do with the actual ordering of the machinery.

Q. 72. And you do know however that after that the machine was installed and it was put into actual use?

A. It was put into use almost immediately on its installation. However, there were troubles to be overcome [fol. 595] that related to the rewinding and particularly the slitting. We were a long time getting our slitting machine ready.

Q. 73. That is, the slitting of this wide sheet?

A. The slitting of the wide sheet after it was coated.

Q. 74. Into a number of narrow ribbons?

A. Narrow ribbons which were spooled.

Q. 75. Has the Crown Cork & Seal Company continued to use this Waldron coating machine and the 4620 cement in large quantities since 1934, 1933 or 1934?

A. Yes, sir, the machine has been in operation day and night for a long time.

Q. 76. One of the patents here in suit refers to a paper spot crown in which the paper spot is a varnish coated hard high gloss paper adhered to the cork with a gutta percha adhesive. When did you conceive that idea?

A. Oh, I conceived that idea very clearly, I think 1925.

Q. 77. What is there that fixes that date?

A. Well, the date is pretty well fixed by a memorandum that I wrote that is entitled, "A Non-Metallic Spot Crown."

Q. 78. I show you Exhibit 56, and ask you if that is the memorandum to which you are referring?

A. Yes, that is the memorandum, July 13, 1921, is my mark on there--no, that is sort of torn here; I think it is 1925.

Q. 79. That is your signature on it, is it?

A. Yes; there is another copy of that.

Q. 80. It is dated down on the last page July 13, 1925; is that the date on which you wrote it?

A. Yes.

Q. 81. Now, after this memorandum of July 13th, what [fol. 596] did you do in connection with making a paper spot crown?

A. Can I tell the story?

Q. 82. Yes, briefly. Did you make such a paper spot crown?

A. Yes; that paper spot crown, the purpose of the paper spot crown was really as a substitute for a natural cork crown, and my interest in the thing, or my ambition, you might say, was to get a crown which would adequately seal high pressure acid-containing beverages such as ginger ale, and this was the thought that I had, but there were many problems to be worked out in connection with this paper until I could get a suitable paper for the purpose.

Q. 83. At that time the Crown Cork & Seal Company were making foil or metallic foil spots?

A. Tin spot crowns.

Q. 84. Would that be suitable for these beverages?

A. That would not be suitable, and they were making tin spots on natural cork, and they were expensive.

Q. 85. Were there any paper spot crowns on the market at that time, to your knowledge?

A. No, there were not; and I went into the libraries and consulted a lot of reference books to find out whether anything of that sort had ever been made, and to my knowledge nothing of that sort had been made.

Q. 86. When you say "made" you mean made commercially?

A. Commercially used, nor had any patents been taken out.

Q. 87. Had your attention been called to the difficulties that bottlers of ginger ales and similar materials were having with natural cork?

A. Yes; they had a considerable amount of trouble.

[fol. 597] Q. 88. I say, your attention had been called to that?

A. Yes.

Q. 89. In connection with salesmen's reports and things of that sort, you mean?

A. Very much the trouble that has been described on the witness stand by these witnesses this morning.

Q. 90. My understanding is that prior to 1925, the Crown Cork & Seal Company had made some kind of stoppers or caps which were lined with paper; is that right?

A. Yes; we made what we termed Axa crowns. They were different sizes, but one of the sizes was the same as the size of the beverage crown.

Q. 91. How were those—

A. They were a complete facing, generally over composition cork; sometimes the material was mounted on cardboard, and the mounting was done in strip form and then the material punched into discs and placed into crown shells.

Q. 92. That is, the entire—

A. Surface of the cork was covered by the facing material.

Q. 93. But all of the soft material inside was punched out at one operation and then inserted into the metal?

A. Yes, the process being the same as that for the regular Crown Cork assembly, cork feeding.

Q. 94. Are these crowns of Plaintiff's Exhibit 66 of the type you have just been describing?

A. Yes, that is the type as far as the liner is concerned, and as far as the size of the skirt. These have a little feature there that wasn't in all of our crowns.

Q. 95. You are referring to that little excrescence on the top of the metal?

A. Yes.

Q. 96. For what sort of liquids was this type of over-all [fol. 598] crowns used?

A. We used those for sealing ammonia water and bleaching water, sealing vinegar, cider, all with still liquors, not for anything that was carbonated.

Q. 97. No pressure?

A. No pressure.

Q. 98. What was the adhesive used in these over-all facings?

A. We used different adhesives at different times. We used, I think, in those particular ones, I believe Burgundy pitch was used.

Q. 99. Was there a varnish applied to it?

A. Varnish applied.

Q. 100. To the over-all facing or to the paper?

A. Oh, on varnished paper.

Q. 101. What kind of varnish was used?

A. Well, a varnish that was generally resistant to acids and to alcohol.

Q. 102. An asphalt base varnish, was that ever used?

A. Asphalt base varnish.

Q. 103. Was that ever used?

A. That was the usual varnish, but there were other types of paper used, there were certain yellow papers.

Q. 104. Were these over-all facings suitable for bottling of pressure beverages?

A. No.

Q. 105. Why not?

A. Well, because it will not hold the pressure without leakage.

Q. 106. For how long a period had you been investigating the matter of a suitable paper for resistance to liquids?

A. You mean for carbonated liquids?

Q. 107. Yes.

A. Well, I might say that back in 1920, there was in general use what was known as oil papers. These oil papers were used in the trade by bottle cap manufacturers, not necessarily crown cork manufacturers, and they had [fol. 599] quite an off taste, an odor, very odorous. And we made some paper ourselves and coated it with a varnish which was rather unique at that time in 1920. It consisted

of linseed oil and some chinawood oil and a plasticizing material, and we obtained a varnish coated paper which was tasteless and odorless. The paper stock was of the thinner variety that was in rather common use at that time.

Q. 108. I show you a letter dated August 30, 1920, signed A. A. Eisenberg and addressed to Mr. A. H. Warth. What do you know about that letter?

A. This is an original letter to me by Eisenberg of August 30th, and he says here, he speaks about this investigation that was started on August 5, 1920, to determine the method and materials for making this paper.

Q. 109. Who started him on this investigation?

A. I did. It has attached to it a piece of paper that we made way back in 1920, this varnished coated paper.

Q. 110. Did you receive that letter on or about the date that appears thereon?

A. Yes, I did.

Mr. Scull: I offer this letter in evidence.

(Marked Plaintiff's Exhibit 73 in evidence.)

The Court: Does your offer include the piece of paper?

Mr. Scull: Yes, your Honor.

Q. 111. This letter gives a formula which you used on this paper as-boiled linseed oil, process varnish and golden black. Now, what was this process varnish?

[fol. 600] A. The process varnish that we used was the same varnish that we used for coating tin plate, for manufacturing bottle caps and that was a chinawood oil varnish, about 25 gallons of oil to 100 pounds.

Q. 112. What is this golden black?

A. It is gilsonited material of a plastic nature, pitch-like.

Q. 113. Would there be a plasticizer in this particular combination?

A. Yes.

Q. 114. Would you say that this sample of paper that is attached to Exhibit 73 is unusual in its flexibility considering that it is 15 years of age?

A. Yes, it is unusual because I have gone through my records down there to get samples of this oil paper that were made some years ago by manufacturers and they are so brittle they all go to pieces.

Q. 115. Now, in developing these paper spots what kind of paper did you try?

A. We started out with, I believe, kraft paper and then express paper and paper of varying thicknesses. You see the first paper spots we made up, when they were put on the bottle and the crown was put on the paper would break and I was confronted with getting a stouter paper.

Q. 116. Why would the paper break, and in describing it, will you refer to figures on Exhibit 17. For instance this Standard non-spot crown or the McManus center spot crown.

A. The crown is placed on the bottle with 600 pounds of pressure and you can see if you have your spotting material here only half-way over the locking wing you can see from the shape of this there is a compression down there and there is a strain and tension on your spot material and the paper being material which will not give like tin-foil, [fol. 601] you must have a very strong paper. That is about 17 pounds pull right here at this point (indicating) in the periphery of the locking wing.

Q. 117. Why couldn't you overcome that by making the paper thicker?

A. I made the paper thicker. In fact, I jumped to a paper of about twice the thickness. In fact, I had my thickness so high, around .007, that I ran into great difficulty and that was that I got leakage, my crowns would not hold the 40 pounds pressure.

Q. 118. Why was that?

A. Simply because in trying to seal with material that was not very compressible or very flexible.

Q. 119. And, therefore, it would not conform to any—

A. Would not conform to any irregularities in the glass top of the bottle.

Q. 120. Did you finally find a paper that would meet these conditions?

A. Yes, I finally found a paper, I found that the thicknesses were rather limited, I could get a satisfactory result if I kept my varnished paper within a thickness of .005 and .006. .0055 I found to be the best thickness.

Q. 121. And what particular kind of paper?

A. I used a high gloss paper coated with a plasticized chinawood oil varnish a paper known as express paper. The paper had to be very dense and moisture-resistant, so far

as papers go, and one which would be smooth so as to give a dense—so that the varnish would have a continuous film and also I had to have a paper which was a special paper that was free from any dehydrated spots, in other words the paper had to be made up by the mill for the purpose.

Q. 122. That is as nearly uniform in its condition as possible throughout its entire surface?

[fol. 602] A. So there would not be any loose fibres because if there were loose fibres then the varnish coatings were not continuous and none of these varnish coatings are 100 per cent impervious to water. You must depend on the dense paper and then besides that on the gutta percha that underlies the paper to get that proofness against that water vapor that is required in the bottling of these highly carbonated beverages.

Q. 123. Did you use gutta percha as your adhesive?

A. I did and found it was very satisfactory in that respect.

Q. 124. That serves as this barrier that you have been telling us about, to back up the paper as well as the adhesive?

A. Yes.

Q. 125. I think you told us you settled on chinwood oil varnish.

A. Yes.

Q. 126. And that was because the linseed oil varnish had a taste and a flavor?

A. I could not make any headway on these linseed oil varnishes with high pressure beverages, the taste would go into the ginger ale and you simply could not use it.

Q. 127. This period you are telling us about is still 1925 and 1926?

A. No, this development covers over a period of years. I would say from 1925 to 1928, without any great degree of perfection until about 1928, so far as the sealing of high pressure beverages is concerned.

Q. 128. How about the actual making of the spots on the crowns; did you try that with paper?

A. You mean manufacturing them?

Q. 129. Yes.

A. Yes, I tried that rather early. I think I was able to get very good results when we were able to combine gutta [fol. 603] percha to the paper and I got a very satisfactory production from a machine standpoint.

Q. 130. That combining, I assume, occurred subsequent to this Anheuser-Busch incident in the latter part of '26 or '27, when Goebel first got up the combining machine?

A. Yes.

Q. 131. And you then combined——

A. A separate strip of tissue and varnished paper, for samples, sample lots.

Q. 132. Did that work successfully in the spotting machine?

A. Yes, that worked quite well.

Q. 133. Do you still do the combining of gutta percha with the paper in the plant at Baltimore?

A. No, we discontinued that;—I am not sure of the date, I think it was around 1928.

Q. 134. Now, after these experiments you have been telling us about, did you finally reach a paper spot crown with characteristics which you thought would make it commercially practicable?

A. Yes, in about 1928.

Q. 135. I show you an invoice dated April 13, 1927, for in typewriting 50, and then that number is crossed out in pencil and marked 10 gr. double lacquer Canax with glazed paper spot for Burroughs Bros., Balto., Md., and ask you if you know what that is?

A. Yes, I do know what this is.

Q. 136. What is the incident in connection with it?

A. This relates to an arrangement that we made with a Mr. LaCourse of the Burroughs Brothers Company of Baltimore, Maryland, relative to trying out some of these glazed paper spot crowns on citrate of magnesia. And I was talking to him about sending him down a sample lot of 50 gross, [fol. 604] and I guess the gentleman thought that was too many, and cut it down to 10 for experimental purposes.

Mr. Scull: First I offer in evidence this invoice as Exhibit 74.

(Marked Plaintiff's Exhibit 74 in evidence.)

Q. 137. Did you follow up that test?

A. Yes, I followed it up.

Q. 138. I show you a letter dated June 30, 1927, and signed A. H. Warth, and addressed to the Production Department, William Sutherland, Burroughs Brothers, Bal-

timore, Maryland. Did you write that letter and on the date which appears thereon?

A. Yes.

Q. 139. What is this letter, what was the reason for it?

A. Well, I think that Mr. LaCourse probably forgot about my great interest in the results of these glazed paper spot crowns, and I really wanted to know how they turned out.

Q. 140. This was to stir up the matter?

A. Yes, to stir up the matter.

Q. 141. I show you another letter dated July 1, 1927, and ask you whether you wrote that letter and on the date that appears thereon?

A. Yes, I wrote it on July 1, 1927.

Q. 142. Was the purpose of this letter the same as the previous one of June 30th, to stir up the matter of these outside tests?

A. Yes.

Q. 143. I note you say here, "We have one practical test on the outside, this was a sale of citrate of magnesia. The spot crown has proven satisfactory for that purpose." Had you ascertained by that time from the Burroughs Com-[fol. 605] pany that it had been satisfactory?

A. Only in this way, that they evidently used them, I do not know positively, they must have used them. I hadn't heard anything to the contrary.

Q. 144. On these outside tests I assume that, just the same as in your laboratory tests, it really takes quite a little time to ascertain that the material is going to be entirely satisfactory?

A. Yes.

Mr. Scull: I offer these two letters, dated respectively June 30, 1927, and July 1, 1927, as one exhibit.

(Marked Plaintiff's Exhibit 75 in evidence.)

Q. 145. Was this shipment to Burroughs Brothers the first, so far as you know, of any test caps that were sent out of the plant at Baltimore?

A. Yes.

Q. 146. That is, of glazed paper spot crowns?

A. Yes.

Q. 147. I show you another invoice, or rather, I show you two invoices, one dated August 17, 1927, and the other dated

September 9, 1927, to Macomber Orchard Company, Sonora, California, one for 100 gross in pencil and one for 50 gross of gr. dl. No. 26 crowns glazed paper spot over Cerax. Do you know what those invoices relate to?

A. Yes, they relate to a small lot of crowns that were sent out to Macomber Orchard Company, Sonora, California, for the sealing of cider, uncarbonated cider.

Q. 148. Do you know whether or not this was a test lot that was cut out?

A. Yes, that was a test lot, a small lot.

[fol. 606] Q. 149. And those were the glazed paper spots you have been telling us about?

A. Yes.

Q. 150. Did you ever get any report from the Macomber Orchard Company about them?

A. No, I tried many times to get one from our sales department.

Q. 151. Do you know whether the Macomber Company ordered any paper spot crowns after that?

A. No, I think they ordered natural cork after that.

Mr. Scull: I offer these two invoices in evidence as one exhibit.

(Marked Plaintiff's Exhibit 76 in evidence.)

Q. 152. Who was the first big customer to whom you sold these glazed paper spots?

A. Hoffman Beverage Company of Newark, New Jersey.

Q. 153. Do they do a large business in ginger ale?

A. One of the largest manufacturers of that kind in the country.

Q. 154. In the country?

A. Yes.

Q. 155. I show you a bunch of invoices dated October 4, 1927, for 2,000 gross of glazed paper over Cerax crowns; another one dated May 17, 1928, for 6,000 gross of glazed paper Nepro; another one dated July 3, 1928, for some 4,200 gross glazed paper spot Nepro crowns; one dated April 12, 1928, for 1,000 gross of glazed paper Nepro crowns; and another one dated April 5, 1928, for 1250 gross, and another one of 5,000 gross. Are those typical of the way in which the Hoffman Company had been ordering these glazed paper spot crowns?

A. Yes.

[fol. 607] Q. 156. And the paper spot crowns that have been supplied on these Hoffman orders are the varnish express paper attached to the cork?

A. Composition cork.

Q. 157. The gutta percha that you have been telling us about that you developed in 1925 and 1926—

A. Yes.

Q. (Continuing.) —to your knowledge, after the Crown Cork & Seal paper spots appeared on the market, have other manufacturers been making and selling paper spot crowns?

A. Just as soon as we got them on the market they began to imitate.

Q. 158. You were here yesterday when Mr. Goebel was testifying about the success of the machines which were made for spotting crowns by the Crown Cork & Seal Company, were you not?

A. Yes.

Q. 159. And in which he told of first making the slide machine and its use and then the machine utilizing the two separate strips of foil and gutta percha and by finally combining of those two strips into one?

A. Yes.

Q. 160. Now, without taking you through all that what is your recollection as to those machines? Do you agree with Mr. Goebel as to what he said as to them?

A. Yes.

Q. 161. How did you come to get up this first machine after the slide machine—what was the reason, what was wrong with the slide machine?

A. In 1924?

Q. 162. 1924 or 1925, whenever it was.

A. The slide machine gave very poor production. The slide machine as I recall only operated at a speed of about 60—produced about 60 caps a minute and they would be [fol. 608] down sometimes for days and mechanics would be repairing them and they were very, very unsatisfactory. In other words we had three machines and there was always a lame duck. I might say I had an ambition to run other materials than tin-foil but those slide machines would have never done for the purpose.

Q. 163. When you say other material you mean such as paper?

A. Such as paper and aluminum foil and various coatings.

Q. 164. You are the patentee of patent No. 1,788,260 which is the original of the reissue patent No. 19,117 in suit, aren't you?

A. Yes.

Q. 165. When you received that original patent did you read it?

A. Yes.

Q. 166. Are you familiar with the patent claims or their interpretation?

A. No, I leave that to the patent attorneys.

Q. 167. Will you please tell us the circumstances under which this reissue came to be applied for so far as you are concerned?

A. I do not think I can properly answer that, that was a matter that was also left to the attorneys.

Q. 168. Did you have any discussion with Mr. Darby in reference to the spotting machine in connection with this original patent?

A. Well, I do recall saying to Mr. Darby that I noticed in one of the claims of one of my patents there was no reference to the cooling dial, cooling the spots after they had been assembled with the post heater and I told him I thought that was a matter that should be covered.

Q. 169. Where did that conversation take place?

A. It was down at the Crown Cork & Seal plant, when we were looking over—I don't recall just where, but the [fol. 609] Crown Cork & Seal plant at Baltimore, it may have been in the office or it may have been in the plant.

Q. 170. Do you remember roughly how long it was after that before you signed your application for reissue, was it a long time or a short time?

A. It seems to me it was a short time.

Q. 171. In the original specification forming part of the File Wrapper of patent 1,788,260, which is Defendant's Exhibit III, at page 5 I find this statement, "It may be desirable to secure the metal foil spot in position prior to the heating and pressure steps sufficiently to prevent dislodgement of the spot during any interval between the assembling and final sticking. This may be accomplished for example by pre-heating the assembled crown to soften the coating as soon as the metal foil spot is deposited, or the coating may

be softened by moistening slightly with a solvent such as benzol. In either case the coating becomes tacky enough to hold the metal spot from getting out of position during the ordinary passage through the assembling apparatus." I am particularly interested in that sentence "or the coating may be softened by moistening slightly with solvent such as benzol." Did you ever do that?

A. Yes, I tried out some gutta percha and foil, moistening the gutta percha with a sort of felt or sponge which was rather wet with benzol and I produced crowns that way but the trouble was that I could not control the amount of benzol and I would get too much of it on and it resulted in the gumming of the punch and therefore I thought that method was not practical from a commercial standpoint.

[fol. 610] Q. 172. But it would be possible however to make a few crowns that way?

A. Oh, yes.

Q. 173. And in that event you would not use heat?

A. You would not use heat.

X Q. 174. In other words, supposing we were using a combination strip; if we moisten the surface with benzol, that would make it tacky—the surface of the gutta percha?

A. Benzol or a suitable organic solvent material.

Q. 175. Then if the spot were cut out of that and applied to the crown, the gutta percha might be sticky enough to stick to the crown?

A. Yes.

Q. 176. Just by pressure alone?

A. Yes.

Q. 177. And in that respect it would be more or less like the wetting of a water soluble cement, would it not?

A. Yes.

Q. 178. When was it that you tried out that possible use of benzol, do you remember?

A. I think it was in 1925.

Mr. Darby: If your Honor please, we have the original here of the assignment that counsel for the defendant requested. I telephoned my office, and I find I was mistaken and that it was not recorded. That is a matter of record, and my recollection was not correct.

Mr. Warland: I would like to have it appear on the record that that assignment was never recorded.

The Court: He has already announced it.
Mr. Darby: I have said it.

Cross-examination.

By Mr. Warland:

X Q. 179. I show you Plaintiff's Exhibit 56 which is dated July 13, 1925. Do I understand you that that is the date [fol. 611] of your invention of the matter shown in patent 1,899,782?

A. This is my first description of the patent, July 13, 1925; that is not the date of the application.

X Q. 180. Yes, I am just asking you was that the date of the invention.

A. Yes.

X Q. 181. Application for that patent became involved in interference with an application of Lange, didn't it?

A. Yes.

X Q. 182. Or with a patent to Lange?

A. Yes.

X Q. 183. The application for this patent 1,899,782 became involved in interference with a patent to Lange 1,758,610, did it not?

A. I believe it did.

X Q. 184. This patent to Lange is the one which became involved in interference with the application for the patent in suit 1,899,782, is that right? Look at the claims in that patent there.

A. I think so.

X Q. 185. You made a preliminary statement in that interference, did you not?

A. Yes.

X Q. 186. And you stated in that preliminary statement that the invention was reduced to practice by manufacturing and using material of the character defined by the count on or about the first day of June, 1915, at Baltimore, Maryland, and that material of the character defined has been made and used in large quantities since June 1, 1915. That is true, isn't it?

A. Yes.

X Q. 187. And you testified as a witness in this interference as you recall it?

A. Yes.

X Q. 188. And you stated in that interference that July 13, 1925, was the date of your invention, didn't you?

A. Of my non-metallic spot crowns.

[fol. 612] X Q. 189. Called for by the interference?

A. Yes, this varnish paper spot crown.

X Q. 190. And this identical paper which is marked Plaintiff's Exhibit 56 in this case was Warth Exhibit 29 in Interference 60,878?

A. I am not able to follow you completely on these numbers; I simply don't remember them. I can tell you about many of these things and the circumstances surrounding them from the standpoint of a chemical engineer, not from the standpoint of an attorney.

X Q. 191. Do you remember testifying in the interference as follows: "Do you understand the claim involved in this interference and I refer to the claim of the Lange patent involved in this interference?" and your answer, "Yes;" do you remember testifying to that?

A. Yes.

X Q. 192. And this, "Do you claim to be the inventor of the subject matter of that claim?" and your answer "I do." Did you so testify?

A. Yes.

X Q. 193. That was the same invention which you say was reduced to practice and sold in large quantities in 1915?

A. Well, so far as the strip material is concerned, strip material was made way back in 1915 but there was no non-metallic spot crown or glazed paper spot crown made until a far later date, 1925 I said I made the first non-metallic spot crown.

X Q. 194. Where it reads, "The new article of manufacture, a paper having a high gloss and having a coating of varnish on one surface of the paper and a coating of gutta percha on the other surface thereof." Do you claim to be the inventor of that in 1915?

[fol. 613] A. I do not claim to be the inventor of it, no, except in so far as the coating of a varnished glazed paper with a solution of gutta percha in carbon tetrachloride is concerned, I was the first to do that. That was way back in 1915. I might say that we bought the glazed paper then.

X Q. 195. Do you remember testifying in that interference as follows, in reference to this article, "A short time

in 1915 we made the coated oil paper with gutta percha solution and we had this in operation for about a week, but this material was not used for center spot crown material, but was used for wide mouth bottles."

A. Yes, I mentioned before that this was not, we made these other crowns in different sizes. We did have a small size Axa crown but that was a separate division from our beverage business.

X Q. 196. Now, plaintiff's answer to the defendant's bill of particulars gives a date of conception and reduction to practice as 1921, of this invention, is that right?

A. 1921 I produced the first varnish coated paper having a chinawood oil varnish and a paper which was tasteless and odorless.

X Q. 197. Now, there is nothing here about the relation of your invention, about a chinawood oil, it says, "Having a coating of varnish on one surface of the paper and a coating of gutta percha on the other surface thereof."

A. It was an alcohol resistant.

X Q. 198. Just read that please and tell me whether you invented that in 1915 or whether you did not.

A. Your question is involved as to what really constitutes invention and I am not in a position to decide.

[fol. 614] X Q. 199. But you did say in your testimony in this interference that count covered your invention, didn't you?

A. It seemed to me that it matched up very much with some claims that Lange had for coated varnished paper that was alcohol resistant and acid resistant. You see, Lange had a rather broad claim—

X Q. 200. You just read that claim, no matter whether it is broad or not; we won't discuss that. Didn't you testify in that interference, referring to Exhibit 29, that is the paper I have just shown you of 1925, "I note that you have appended to the description three brief statements which are in the form of claims. Please state whether you regard the gutta percha as your invention or the paper or both, that is, the combination. A. I regard the combination of paper and the gutta percha as my invention." That is correct, isn't it?

A. Yes.

X Q. 201. That is what you invented in 1915, is that right?

A. I said before that it was, as far as I was concerned it was something that was new, fairly new in the art.

X Q. 202. Fairly new in the art in 1915, when you made them?

A. Yes.

X Q. 203. You were asked this question: "In your opinion does the claim involved in this interference describe the product that was made in the Crown Cork & Seal Company's plant in the summer of 1927? A. It describes the product that was made in the Crown Cork & Seal Company plant since May 5, 1927." And that is the same thing that you invented in 1915, wasn't it?

A. Not the same thing, because the product that was made in 1915 was rather a thin paper, as I recall it, not [fol. 615] suited particularly for spot crowns, for sealing of acidulous carbonated beverages.

X Q. 204. Do you remember testifying in this interference, "What, in your opinion, is an article of manufacture? A. In my opinion an article of manufacture—an article of manufacture is an article which has not appeared on the market before.

"Q. What does the article consist of that is defined by this claim? A. It consists of a varnish coated glazed paper coated on the reverse side with gutta percha."

Now, that is what you invented in 1915, isn't it?

A. 1915, why, the products in some way vary, they were vastly different from the later product, but in the general broader way it was the same. It was a coating that was obtained, coating a strip of material with a gutta percha solution, which on drying gave a very thin film, and that was substantially a film of gutta percha that we found later was required for spot crowns that was used for sealing these high pressure beverages.

X Q. 205. What did you invent in 1921, the date given in the bill of particulars?

A. Well, I haven't those bill of particulars there, I don't know, I haven't seen any of that testimony in years.

X Q. 206. Now, you state in answer to the bill of particulars, or rather, it is stated in the answer to the bill of particulars on patent 1,899,782, the date of conception is early in 1921 and reduction early in 1921. Is that correct or is it not?

A. 1921?

X Q. 207. Yes.

[fol. 616] A. If it says so there it must be true; I must have had records to make that statement.

X Q. 208. Well, how about your record that has just been put in evidence here—they showed you a specimen of the material that was made in 1921, a piece of paper that was coated with varnish containing chinawood oil and a plasticizer.

A. So far as the material is concerned, yes.

X Q. 209. How about Plaintiff's Exhibit 56, which refers to the combined varnish paper and gutta percha which you say you invented in 1925?

A. As I recall, it was a black alkali paper coated with an asphaltic varnish.

X Q. 210. You don't say anything here about a black asphaltic varnish paper.

A. And we also used this yellow oil paper.

X Q. 211. What I want to know is, is the statement that you made in the interference that you conceived this thing in 1915, and reduced it to practice, is that correct or is it not correct?

A. In 1915, we made a paper which was coated—

X Q. 212. Please answer my question. Is it correct or is it not correct?

A. What constitutes a reduction to practice I am not able to answer, that is a matter for attorneys to decide.

X Q. 213. You made an affidavit saying that it was true?

A. I thought it was true, I was advised by counsel, and I assumed they were correct before I signed the document—legally correct.

X Q. 214. Counsel advised you what reduction to practice was at the time?

A. No, they did not—from a legal standpoint.

X Q. 215. Did you sign a statement of something that you did not know whether it was true or not?

[fol. 617] A. I might not understand the legal end of a thing and still sign a document if I thought it was advisable to do so, and I had reason to believe it was true.

X Q. 216. I show you a certified copy of the File Wrapper of application for patent to Warth No. 1,899,783, and I ask you if you recall making the affidavit dated December 31, 1932, part of the File Wrapper of that patent?

A. Well, it has my signature.

X Q. 217. You did make that affidavit?

A. I must have signed it, I must have made it.

X Q. 218. I notice you said in one portion of that affidavit, "The final development of this spot which proved to

be satisfactory in use presented a number of problems from the standpoint of economical production on a commercial scale. As will be understood, manufacturing plants had already installed machines for the manufacture of center foil spots and it was necessary, therefore, that I design my cap so that it might be manufactured by existing machinery." Now, who were the other manufacturing plants referred to in that affidavit? The affidavit is dated 1932.

A. 1932, that were manufacturing spot crowns?

X Q. 219. That is what you say in the affidavit.

A. Well, I can only tell you from my best knowledge and belief: I think the Western Stopper Company made some spot crowns; W. H. Hutchison of Chicago; and in 1932, the defendant made them, and I am not positive, but I think they were made by Truslow & Fulle and by the Standard Crown Company.

X Q. 220. Do you think of any others?

A. The Armstrong Cork Company, Armstrong Cork Company.

[fol. 618] X Q. 221. Is that all you can think of now?

A. That is all I can think of just now, but there might have been one or two others.

X Q. 222. You stated on page 54 of that affidavit: "The Crown Cork & Seal Company had used for many years a mixture of Burgundy pitch and other adhesive materials which constituted an adhesive resistant to liquid, but an adhesive merely moisture-resistant was not suitable for a center spot cap. In addition to this adhesive, a large number of other adhesives have been used in the crown cap art, but I found none suitable excepting the one having characteristics of (a) water insolubility, (b) heat-fusibility, and (c) acid resistance. The only adhesive available at the time having those characteristics available I found to be gutta percha, or a mixture of gutta percha and other materials, making the adhesive essentially gutta percha. I discovered that this particular adhesive had another characteristic which made it of extreme value, namely, its inherent elasticity which afforded an elastic cushion or backing for the paper."

Just what did you mean by that statement, that you discovered the use of gutta percha as an adhesive?

A. Well, I discovered the use of gutta percha as an adhesive in all senses of the word? No.

X Q. 223. You mean to say you discovered it as a suitable adhesive for center spot crowns?

A. No.

X Q. 224. That had been done long before your time, had it not?

A. No, I do not think so. When I was with the Crown Cork & Seal Company rather early I remember making up, [fol. 619] not spot crowns necessarily, but facing materials with gutta percha on cork, very early, but I wouldn't say positively that I originated that; I wouldn't say that.

X Q. 225. You were shown that slide spot machine that Mr. Goebel put in yesterday.

A. Yes, sir.

X Q. 226. And that worked on gutta percha and metal foil—for center spots?

A. Yes.

X Q. 227. That you used in the plant of the Crown Cork & Seal Company as far back as 1914 or 1915?

A. No, I do not believe that was as far back as that, I wouldn't have any knowledge anyway of the date as early as 1914, because I wasn't with the Crown Cork & Seal Company then. But I know that they had no slide machine when I first came there.

I wanted to say to your Honor with respect to these dates that go way back, they are approximate. For instance, they may be a year out of the way; when it comes to 1916, it may be 1915 or 1917. I am not trying to fix exact dates going back almost twenty years.

X Q. 228. Let us put the question this way: When you first went to work for the Crown Cork & Seal Company in 1916, Crown Cork & Seal Company of Baltimore, Maryland, that company was making and selling crowns having a metallic foil center spot secured in the crown disc by gutta percha?

A. No, I do not believe they were selling any.

X Q. 229. Not selling any?

A. No.

X Q. 230. When did they first begin to sell them?

A. I think they first began to sell them in 1917 or 1918. I believe the first crowns I saw there were made up for a [fol. 620] concern called the Colfax Bottling Company, Colfax, Iowa. I do remember these crowns, and this tin-foil was so badly wrinkled on them, I do not know how they were

attached to the cork, but they were badly wrinkled. Evidently they had been turned out by one of the managers of production.

X Q. 231. Didn't you have charge of that?

A. I didn't take charge of production.

X Q. 233. You knew about the production?

A. Did I know about it? Not everything, because when I came with the Crown Cork & Seal Company in 1916, a Mr. J. G. Daly was the chemical engineer. He left, however, within about a year, when I assumed charge. So that there were many things that went on down there when I was only an assistant, that is, for the first year, that I did not know about. So I did not know everything the first year, I was assigned to certain problems.

X Q. 234. You did have a general knowledge of the kind of goods they were selling and you were to work on?

A. I was learning about it that year.

X Q. 235. And you learned very shortly after you went there that they were selling a metal-foil spot with gutta percha adhesive?

A. No, they were selling a crown which had a metal cork disc with a foil over the whole facing, and tucked in around the edge. And they shipped some of these crowns, and I remember they shipped some to Saratoga Springs, that was what we called the London-crown. And in 1918, or thereabouts, there were considerable complaints about these crowns because it would not seal the carbonated waters. And they were bending every effort to get out the spot crowns.

[fol. 621] X Q. 236. I show you Defendant's Exhibit GGGG which covers a number of invoices from the Crown Cork & Seal Company to the Kalak Water Company and one of those is dated June 1st, 1917, and calls for tin-foil center light. Another one on June 18, 1917, calling for 200 gross, tin-foil center light; another one dated August 9, 1917. How were those spots put on, were they not put on by gutta percha?

A. Yes.

X Q. 237. And you knew that these shipments — to the Kalak Water Company at the time?

A. Just let me see those again, please? What amuses me is the very large number of crowns that went out at that early date. I did not know the quantity of crowns shipped

to the Kalak people but I did know we were shipping crowns to the Kalak Water Company.

X Q. 238. On the dates in 1917, mentioned in the invoices.

A. Evidently that must be true if they were mentioned in the invoices.

X Q. 239. I call your attention to your patent 1,788,260, the application filed January 7, 1927. It reads, "According to still another method the spots are secured by an underlying tissue of gutta percha or coated paper." How far back was gutta percha used when you made that affidavit?

A. Gutta percha tissue was used evidently prior to 1917.

X Q. 240. For securing the center foil spots?

A. For securing tin-foil center spots, yes.

X Q. 241. Now, as I understand your testimony as to this 4620 you first thought of that in 1926?

A. In 1926, yes, about that time.

X Q. 242. Did you think of nitrocellulose in resin?

[fol. 622] A. I thought of a resin—that is a solution of a resin and nitrocellulose with a plasticizer or solvent material.

X Q. 244. Is it described in your patent 1,956,481?

A. Well, a material of that nature is referred to in the patent. However, in my experiments, my early experimentation, I did not have these glyptals or synthetic resins to work with, my work was done very largely with natural resin, and the resins that were available in those years.

X Q. 245. You are familiar of course with the composition of the adhesive in your patent?

A. Yes, the perfect composition uses a synthetic resin as one of the components—4620.

X Q. 246. The material described in that patent, is that the same as 4620?

A. I would not say it is the same, but the formula that is given there as an illustrated formula is one that produces a resultant effect of the thermoplastic film that I have described on the stand here before.

X Q. 247. Would you say whether the composition described in patent 1,956,481 is or is not the same composition as in 4620?

A. In so far as it contains a synthetic resin, nitrocellulose, a plasticizer and a solvent it is the same.

X Q. 248. What do you use in your commercial production now?

A. In our commercial production we are using 4620.

X Q. 249. And you didn't make any caps to demonstrate the value of this nitrocellulose and resin until 1932; did you?

A. Did I make any spot crowns? I made them back years before—

X Q. 250. Listen to the question, please read it to him.

(Question repeated by the reporter.)

[fol. 623] A. Not in any considerable quantity.

X Q. 251. You really didn't begin your experiment with it until 1932, did you?

A. I stated that I was experimenting—you mean with a material such as is described, a synthetic resin, nitrocellulose, a plasticizer and solvent, a material of that description?

X Q. 252. Yes.

A. A material of that description which has synthetic resin in approximately the proportions as they are given there, I did not experiment with until January, 1932.

X Q. 253. When did you first find out the superiority of 4620 as an adhesive over gutta percha?

A. I found a considerable superiority of the 4620 over gutta percha in January, 1932, almost, within a very short time, the same month, in fact almost the same week as I got the sample can of material.

X Q. 254. But you didn't discover that in 1926, did you?

A. No, I couldn't discover it in 1926. In 1926 I stated that I wasn't able to get any material which was superior to gutta percha. This 4620 is superior to gutta percha; it is a thermoplastic, that is my belief.

X Q. 255. Now, you made an affidavit in this application for patent 1,956,481, on March 22, 1934, did you not?

A. That is my signature.

X Q. 256. You state in that affidavit, "This continued improvement in the adhesion has been observed throughout periods of a year, and is a valid characteristic of this invention." When did that year begin?

A. That year, the testing and finding out the superiority of 4620 over gutta percha began in January, 1932, and lasted, our experiments lasted throughout the year. And if [fol. 624] you care to I could tell you what that superiority is.

X Q. 257. You saw the sample of the material coated with 4620 which was given by the defendant to Mr. Fusting and Mr. Darby in their office in 1933, did you not?

A. I believe I did, I think I saw some of those crowns.

X Q. 258. I show you the patent in suit 1,956,481, and I call your attention to the matter on page 2, beginning at line 11, "Among" and so forth, down to line 60. You said there the great superiority of nitrocellulose and resin over gutta percha and that matter, according to the file wrapper was inserted on March 23, 1934, some six or eight months after you had seen that sample that the defendant gave you. Is that the first time you realized the advantages of a nitrocellulose adhesive over gutta percha?

A. No, I realized those advantages, as I said before, in January of 1932.

X Q. 259. Why didn't you insert that in your application when it was filed in 1933?

A. I did not write this application, I gave the proper information to my attorneys but I did not write the application.

X Q. 260. You read it before you signed it?

A. I read it.

X Q. 261. And it set forth your invention as you thought it was?

A. I read it and signed it.

X Q. 262. Now, if you discovered, as you say you did, the superior qualities of nitrocellulose and resin over gutta percha in January of 1932, why did you—

A. Pardon me—from a manufacturing standpoint and from certain physical standpoints but I had not yet dis-[fol. 625] covered whether that particular spot crown was made that way in the manner that has been described before was suitable for sealing these various beverages. I went ahead with my bottling tests.

X Q. 263. Did you find that out in January of 1932?

A. No, I had not completed my tests on bottling. Those were not completed until just about the first part of 1933. It took to the end of the year before I satisfied myself that a spot crown that was made up with this material would be satisfactory for the brewers and for the ginger ale bottlers and for others.

X Q. 264. And that was about a year after January of 1932?

A. Yes.

X Q. 265. Now, I showed you an affidavit a few minutes ago in the file of application for patent No. 1,899,783 and I show you a certified copy of file of 360,895.

A. Yes.

X Q. 266. In April, 1932, which is the date of the affidavit which I just showed you, you stated that gutta percha is the most desirable adhesive, did you not? Let me show you the statement.

A. Desirable compared with what?

X Q. 267. Didn't you find it the most desirable adhesive there was at that date?

A. Well, I must say, all I can say is in a good many respects we had not proved the superiority of the 4620 or nitrocellulose resin until well throughout the year 1932. I wouldn't say until the middle of Summer that it was better until I completed my tests. Up to that time gutta percha as a whole, and particularly the better qualities that are on the market today, was satisfactory for many purposes.

X Q. 268. And you took out quite a number of patents [fol. 626] or made application for a number of patents after January, 1932, in which the adhesive was either gutta percha or Dammar gum or resin or something like that?

A. Yes, for specific reasons.

X Q. 269. I show you an affidavit on file in application 360,895, dated December 3, 1930, from which resulted patent 1,899,783, and I ask you if you made that affidavit?

A. That is my signature, I must have made it.

X Q. 270. You state on page 2 of that affidavit, "The use of varnish in the cap manufacturing industry, and particularly in the manufacture of crown caps extends back for a period of not less than 15 years."

A. How many years?

X Q. 271. 15. "Furthermore varnish has been used to protect the interior surface of caps for over 12 years as a result the relative proportions of resin and oil employed in this art have become standardized." That is correct, is it not?

A. Yes.

X Q. 272. Look at your patent in suit No. 1,899,782.

A. 1,899,782?

X Q. 273. Yes, please look at page 3 of that patent, down at line 124 where it says, "The method described has been found to be applicable to the coating of paper strips with gutta percha and it is also applicable to coat metal foil but in coating foil it is desirable"—now, when you filed that application it read, "It being extremely doubtful that it could be advantageously used for metal foil." When did

you find out that it could be used advantageously for metal foil?

A. Not necessarily, some of the aluminum foil that is on the market is very often greasy and in that case it may be desirable——

[fol. 627] X Q. 274. But you did not know whether it could be used for metal foil or not when you filed the application?

A. Well, you see this does not——

X Q. 275. Please answer the question, you did not know whether it could be used advantageously for metal foil when you filed the application for this strip material patent?

A. Oh, yes.

X Q. 276. Why did you say it was doubtful whether it could be used on metal foil?

A. I did not say that it was doubtful, I said that, in coating foil it was desirable to previously prepare it by an application of a coating on the surface of the foil to receive the gutta percha and permit it to adhere thereto with sufficient strength to permit a continuing application of gutta percha to a strip as required by the method of my invention. And that would still hold true with certain grades of gutta percha. It depends entirely on the grade of gutta percha that was used.

X Q. 277. You say in your application for this patent that was filed, "The method described has been found to be applicable to coating the paper strips with gutta percha, it being extremely doubtful if it could be advantageously used to coat metal foil."

A. I do not read the word "doubtful" here.

X Q. 279. It is written in there in typewriting, it was crossed out when the amendment was put in in January, 1933, I think, saying it could be used for both paper and metal foil.

A. Well, the "doubtful" is crossed out.

X Q. 280. Yes, it was crossed out when the amendment was put in in 1933. I am asking you why you said that when you filed the original application in 1929.

[fol. 628] A. There was some question whether you could coat an aluminum foil satisfactorily with any gutta percha that contained a high gum content, where the gutta gum was higher than the gum resin.

X Q. 281. You didn't know that until January, 1933, when you put the amendment in, did you?

A. I can't attach my memory to that particular date.

X Q. 282. Now, I will show you your patent in suit 1,899,783, and call your attention to Fig. 3, showing a strip of foil and a strip of gutta percha being fed in separately. That method has been discontinued, has it not?

A. Yes.

X Q. 283. That was discontinued when, about 1925 or 1927?

A. About 1927.

X Q. 284. Why was an application filed in 1929, showing that method?

A. Well, that is one of the ways of doing it. I do not believe, it is not stated in the claim that the two individual strips of material are fed in that way, and I did not make these drawings. They were made by the patent attorney. I doubt whether I have ever seen them, whether I saw them at the time that I signed that.

X Q. 285. You mean you swore to a patent application without either looking at the drawings or the application?

A. I may never have seen those drawings.

X Q. 286. You wouldn't say you didn't see them?

A. I wouldn't say I did see them, because it is possible to do it that way, use it that way.

X Q. 287. You testified in this interference 60,878, that this method was abandoned before the application was filed, didn't you?

[fol. 629] A. What method? The method of using two strips of material from a production standpoint was abandoned by our company prior to 1929.

X Q. 288. Prior to 1929?

A. Yes, prior to this application. As far as our company is concerned, as far as our operations down at the Crown Cork & Seal Company were concerned.

X Q. 290. Now, let us go back to this 4620 adhesive for a moment. You have put in evidence letters from the Waldron Company; in June, 1933, I believe you went down and you saw a test there in June, 1933, and again in July, 1933, and the invention wasn't complete to your satisfaction until those tests had been made, was it?

A. No, I said no such thing. I didn't say I went down there to see the operation; I said I went down to conduct the operation.

X Q. 291. All right, you went down to conduct the operation?

A. Naturally I saw it if I conducted it.

X Q. 292. You were not satisfied with the commercial availability of 4620 as an adhesive until after these tests were made?

A. That is not true. I was not satisfied, of course, as to what might be accomplished in production, and then there were other features involving rewinding and slitting which I had to leave to Mr. Goebel entirely, because I know little about that type of equipment, but so far as the baking operation and coating and drying, everything went splendidly down at Baltimore.

X Q. 293. And you thought it necessary to have it tested outside before you put it on the market?

A. Not necessary.

X Q. 294. Why did you go to all these extensive tests out at Waldron, New Jersey?

[fol. 630] A. With the idea of installing equipment to produce these new spot crowns in large quantities.

X Q. 295. And you did not produce them in large quantities commercially until June of 1934?

A. It was sometime in 1934, in June, before we produced them in large quantities.

X Q. 296. You spoke of using a particular kind of varnish paper for these center spot caps; where did you get that?

A. Our varnish paper for glazed paper spot crowns was gotten in the early days exclusively from the Standard Insulation Company.

X Q. 298. And is that the same kind of paper they were selling to many other manufacturers on the market?

A. Yes.

X Q. 299. I show you a patent to Lange, No. 1,657,802, with the application filed December 16, 1924, where it says, "Papers known to the trade as kraft paper, express paper or rope paper, and with a thickness of from four to six thousandths of an inch before being coated are suitable for this work. The varnish may be a pure quick-drying oil varnish and may be applied to a thickness of from one thousandth to two thousandths of an inch." That is the same thickness that you applied to the paper?

A. Substantially so.

X Q. 300. And it is substantially the same kind of paper?

A. Yes.

[fol. 631]

Brooklyn, N. Y., November 15, 1935.

Met pursuant to recess at 10:00 a. m.; present as before.

GEORGE GOEBEL, recalled, testified further as follows:

Direct examination.

By Mr. Darby:

Q. 468. There has been some testimony with reference to the purchase of the Crown Cap Manufacturing Company by the plaintiff. Do you recall how many machines, so-called Johnson machines adapted to apply center spots were obtained from the Crown Cap Manufacturing Company by the plaintiff?

A. Two.

Q. 469. One of those machines was that combination machine for putting the cork disc in as well about which you testified as having seen in a crate recently?

A. Yes.

Q. 470. What was this other machine, was it a combination machine or just a plain center spotting machine?

A. It is straight spotting machine.

Q. 471. Where is that straight spotting machine now?

A. It is put up in a building away from the spot department, we call it the screw cap department, where we rubber-line the caps.

Q. 472. To what extent has that machine been used since it was obtained from the Crown Cap Manufacturing Company which was acquired by the plaintiff in 1933?

A. That machine was put up last Fall; we received an order for a small quantity of 31 millimeter crowns to be paper spotted.

[fol. 632] Q. 473. That is a crown much larger than these crowns we have been talking about here in this case?

A. Yes, 5 millimeters larger; and we altered the machine to the size of that crown, and we spotted a few, I do not think it was more than a hundred, it might have been a few hundred gross.

Q. 474. To what extent has that machine been used since last Fall?

A. It was used last Spring too.

Q. 475. So last Fall and last Spring it was used?

A. Yes, and then put out of the way.

Q. 476. When you testified yesterday in answer to RDQ444, in answer to the question were any Johnson machines ever used in the plant at Baltimore, did you have that particular machine in mind when you answered the question?

A. No, I did not.

Q. 477. You had forgotten that machine?

A. That slipped my mind.

(Witness excused.)

HENRY D. REED, called as a witness on behalf of the plaintiff, in rebuttal, having been duly sworn, testified as follows:

Direct examination.

By Mr. Scull:

Q. 1. Where do you reside, Mr. Reed?

A. East Orange, New Jersey.

Q. 2. What business are you in?

A. Manufacturing business.

[fol. 633] Q. 3. And connected with what company?

A. The Bishop Gutta Percha Company, the Bishop Gutta Percha Company, the Bishop Wire Cable Company, and the No-Slip Rubber Company.

Q. 4. As to the Bishop Gutta Percha Company what are you there?

A. I am president.

Q. 5. Are you actively in touch with the manufacturing operations there?

A. I oversee all manufacturing operations in the plant.

Q. 6. And what about the gutta percha compositions, are you familiar with them?

A. Perfectly.

Q. 7. Why?

A. I buy the gums that the product is made of and I make up the formulas from which the different articles are made.

Q. 8. How long have you been doing that?

A. 20 years.

Q. 9. I show you some invoices of the Bishop Gutta Percha Company of 1925 which are Defendant's Exhibits OO, QQ, RR and SS, and I ask you to state if you know what is the surgical tissue that is specified in those invoices?

A. I am familiar with that kind of tissue, we manufacture it. These are our invoices.

Q. 10. You are familiar with its character as you manufactured it in 1925, are you?

A. Yes.

Q. 11. How long have you been making that surgical tissue?

A. Under this formula for 19 years—no, from 1919 to the present time—that is 16 years.

Q. 12. That is your present formula is the formula that you were using in 1925?

A. It is.

Q. 13. Did you use any other formula in 1925 for surgical tissue?

A. No, sir.

Q. 14. Now, I show you a part of a roll of foil with a backing on it and I ask you to state if you know what that is. [fol. 634] First, let me ask you this; at our request you coated some tin-foil for us, did you not, recently?

A. Yes, sir.

Q. 15. Within the last few days, about a week ago?

A. Yes.

Q. 16. And you coated that with a surgical tissue as you make it today?

A. Yes.

Q. 17. Now, I ask you what that roll is that you have in your hand.

A. That is tin-foil coated with surgical tissue, interlined with wax paper.

Q. 18. Who made it?

A. We made the gutta percha tissue.

Q. 19. Did you apply it to the tin?

A. We did.

Q. 20. How did you apply it to the tin?

A. The tin is taken in a six-inch width and the gutta percha tissue, the surgical tissue was applied by means of pressure by running through two rollers and then it was slit into this one-inch width, and wound on these cores.

Q. 21. Now, is the surgical tissue on that roll the surgical tissue which you make today?

A. Yes, sir.

Q. 22. Is it exactly the same as the surgical tissue that you made in 1925?

A. Exactly the same quality.

Mr. Scull: I ask that the roll be marked for identification as Plaintiff's Exhibit 77.

(Marked Plaintiff's Exhibit 77 for identification.)

Q. 23. I also show you some invoices of the Bishop Gutta Percha Company for 1928, calling for spooled Indian Brand tissue, and also I. B. tissue. Is that the same as surgical tissue?

A. No, sir.

[fol. 635] Q. 24. What is the difference?

A. They are made for different purposes. The surgical tissue is made to be strong and have a long life, whereas the Indian Brand tissue is made up for its adhesive properties.

Q. 25. Does the surgical tissue become tacky when heated?

A. It becomes tacky, but not as tacky as the Indian Brand tissue, and doesn't have the property of adhering to metal the same way the Indian Brand tissue does.

Q. 26. Do you make and sell coated foil for use by manufacturers of spot crowns?

A. Yes, sir.

Q. 27. What kind of gutta percha do you use on that?

A. We use the Indian Brand type of tissue.

Q. 28. How long have you been making and selling that combination?

A. The Indian Brand type of tissue?

Q. 29. Yes.

A. Since 1906.

Q. 30. How long have you been selling it for use for making spot crowns, to your knowledge?

A. Since about 1917.

Q. 31. Do you know to whom you sold it at that time?

A. Crown Cork & Seal Company.

Cross-examination.

By Mr. Warland:

X Q. 32. What is the difference between surgical tissue or surgical gutta percha and other gutta percha?

A. These tissues are made up by mixing several different qualities of the natural gutta percha. Some gutta perchas contain considerably more resins than others. The gutta percha consists of gutta gum and gutta resin. The greater the percentage of the gutta gums, the more heat [fol. 636] is required to soften it and make it tacky, but it

has a much longer life. When we want to obtain adhesive properties we use a much larger percentage of lower grade gums than we do of the high grade gums. When we want to obtain life and strength such as in this surgical tissue we use the high grade gums which contain a smaller percentage of resins. Does that answer your question?

X Q. 33. Yes, the surgical tissue is, as I understand you, a better quality, higher grade, and it is cleaner, it is cleaner, has less impurities than the commercial grade, is that right?

A. Well, we have to clean them both. The gums that go into the surgical tissue are not originally as dirty as the other gums, and they are easier to clean, although we endeavor to get the others just as clean as we can, but it is next to impossible.

X Q. 34. Well, of course this has the name surgical gutta percha, and I suppose that gets its name from the fact that it is used more largely by physicians and surgeons than the other kind, is that right?

A. Yes, we make it for that purpose.

X Q. 35. In other words the physician wants to get the best and purest thing he can get?

A. It is not only that, but this is put in stock by drug-stores and they may carry it two or three years in stock before they sell it and we require a high grade gum in order to get long life.

X Q. 36. Surgical gutta percha is more expensive than the other?

A. Yes.

X Q. 37. But it sticks just like the other?

A. Not to metal.

X Q. 38. Does it stick to anything else?

A. Not as much as the other gums.

[fol. 637] X Q. 39. But it does stick?

A. It does stick, it sticks to itself, and that is what we have it for.

X Q. 40. One of the inherent properties of gutta percha is stickiness, isn't it?

A. Under heat.

X Q. 41. Well, if you are using a beverage or a liquid which you want to have as pure as possible, and you were using gutta percha adhesive, you would use the best quality of gutta percha?

A. No, sir, the other is just as pure, the fact that the lower grades of gutta percha contain a large percentage

of resin which makes them sticky does not indicate they are not just as pure and just as antiseptic.

X Q. 42. Then one sticks just as well as the other, doesn't it?

A. No, sir.

X Q. 43. But nevertheless one does stick, the surgical does stick?

A. The high grade sticks to a much lesser degree than the low grade.

X Q. 44. But they do stick to a considerable degree?

A. I would not say to a considerable degree, we have difficulty in getting the high grade gutta percha to stick.

X Q. 45. What is this article that I hand you now (handing witness cap)?

A. It is a crown with a portion of a spot on it.

X Q. 46. What is that portion of spot made of?

A. It appears to me to be tin.

X Q. 47. Isn't it a piece of this strip that you just offered for identification?

A. Well, it is a similar one; I cannot say that it came off this spool.

X Q. 48. That cap I handed you first, that piece of foil there, sticks doesn't it, to the crown?

A. There is an adhesion there, yes, sir.

X Q. 49. And you have got to use quite some pressure or effort with your fingers to pull that off?

[fol. 638] A. I would not say quite some—there is a slight adhesion there of course.

X Q. 50. Now, will you take a piece of this roll which you just put in for identification. Now, will you be good enough to take a match and heat that tin-foil and then put the gutta percha on there?

A. Yes, sir (demonstrating).

X Q. 51. Does that adhere or does it not, to the cork?

A. It does adhere.

X Q. 52. Will you hand that to the Court, please?

A. Yes.

X Q. 53. Now, did you tell Mr. Scull that the Bishop Gutta Percha Company first sold gutta percha to the Crown Cork & Seal Company—

A. I think it was 1917.

X Q. 54. Is that when you told him?

A. I think it was 1917.

X Q. 55. Are you sure of that date?

A. Very close.

X Q. 56. Did you testify on behalf of the party Warth in an interference proceeding in the Patent Office of Warth against Lange?

A. Yes, sir.

X Q. 57. Do you remember testifying in that case?

A. Yes.

X Q. 58. And did you testify as follows: "Q. How long have you been supplying the Crown Cork & Seal Company with gutta percha tissue of a character which may be united with paper or other materials adhesively by this heat-producing pressure?" and your answer was "Since about 1914. That would be 15, 16, 17 years." Did you so testify?

A. I remember that, I probably did.

[fol. 639] MIRIAM STOVER, called as a witness on behalf of the plaintiff, in rebuttal, having been duly sworn, testified as follows:

Direct examination.

By Mr. Scull:

Q. 1. Where do you reside, Miss Stover?

A. In Baltimore.

Q. 2. And you are secretary, are you not, to Dr. Warth?

A. Yes.

Q. 3. Have you had any education as a chemist?

A. Yes, I had a six-year science course at Baltimore City College.

Q. 4. And in that course, did you have some training in chemistry?

A. Yes, three years in chemistry and three years in other sciences.

Q. 5. As secretary to Dr. Warth, do you have anything to do with the laboratory?

A. Yes.

Q. 6. Just what do you do?

A. I get all the samples of incoming materials, and they are listed and sent to different members of the laboratory, all samples of any materials, or any incoming samples of raw materials go through my hands. I also conduct some

investigations in the laboratory which Dr. Warth gives me from time to time.

Q. 7. Were you occupying this position in 1926?

A. Yes.

Q. 8. I show you Plaintiff's Exhibit 55 and ask you whether you have ever seen the original of which that is a copy?

A. Yes, I did. The writing, "Adhesive for sticking aluminum spots," at the top was mine. I typed the letter.

Q. 9. That is, the letter "S" stands for "Stover"?

A. Yes.

[fol. 640] Q. 10. Did you write it at about the date that appears thereon?

A. Yes.

Q. 11. When did you make that pencil notation on it?

A. Probably two or three days later, when I filed it away.

Q. 12. Do you remember any circumstances connected with the nitrocellulose resin adhesive that is referred to in that Plaintiff's Exhibit 55?

A. Yes, I do.

Q. 13. What is it?

A. I remember some materials that Dr. Warth had been working with at that time, prior to that time.

Q. 14. Do you know what those materials were?

A. I do not remember distinctly, but I know there were some nitrocellulose materials.

Q. 15. I also show you a series of letters signed, "M. Stover," and dated beginning January 20th and extending to October 20th, 1932, which are now Plaintiff's Exhibit 67, and ask you if you know what they are?

A. Yes; they are notes that I wrote to Dr. Warth from time to time on experiments that I conducted in the laboratory.

Q. 16. These were written for purposes of record, were they?

A. Yes, they were written for purposes of record, just a memorandum record.

Q. 17. And this signature, "Mr. Stover," is yours that appears thereon?

A. Yes.

Q. 18. They were written on the dates which appear thereon?

A. Yes.

Q. 19. Now, they refer to a DuPont 4620 thermoplastic cement. When did you first see a sample of that particular cement?

A. A few days prior to that letter.

Q. 20. The first one, January 20, 1932?

A. Yes, probably a week or ten days before that time, Dr. Warth had this small sample that was either given [fol. 641] or sent to him, I do not remember whether it was left there personally or whether it was sent in the mail.

Q. 21. Did he turn that sample over to you?

A. Yes.

Q. 22. What directions did he give to you at that time?

A. He turned it over to me and he said, "Will you please see if this will work as an adhesive for aluminum spots?" He said "That is something I have been trying to find, as you know, for a long time, a nitrocellulose material that we could use for that, and we want to see whether this is better than anything we have had before."

Q. 23. Then, what did you do?

A. I coated it on aluminum foil in a laboratory way with a small brush, dried it in the air, stamped out some spots and applied them by means of a heated plunger to some crowns.

Q. 24. Then after that?

A. They seemed to work very well, so I coated a longer strip, sent it to the assembly department, and they made up probably half a gross of crowns for me. They came back in very good shape.

Q. 25. Then, according to this letter dated January 20, it says, "A few bottles of assorted beverages were put up and are now in the dark room." What does that mean?

A. We put up beer and other beverages, particularly beer, with aluminum spots and we take the commercial product and replace the crowns and the dark room is our storage room for that product.

Q. 26. How do you replace the crowns on a charged bottle?

A. We make a freezing mixture of ice and salts and we put the bottles upside down in this mixture and have it [fol. 642] very thoroughly frozen at the top and then we remove the crown and replace the crown with a small bottling machine.

Q. 27. You do not lose any of the gas that way?

A. No, we do not lose any of the gas.

Q. 28. Now, these other letters of Exhibit 67 refer to comparisons with gutta percha and the running of other tests. For instance, one case here dated March 19th, "Two bottles of Canada Ginger Ale put up with Irvington shellac coated paper, thermoplastic cement"—by this time you had coated paper and you used it for caps?

A. Yes.

Q. 29. And they were experimental caps that you had in the laboratory?

A. Yes.

Q. 30. I note here that the spots were in good condition but the Canada Dry Ginger Ale had a pronounced paper taste.

A. That was due to the fact that the poor quality of the paper, the kraft coated with shellac is not a good quality paper like the express paper that we ordinarily used as a base and I, therefore, noted it gave this taste to the ginger ale.

Q. 31. Then, on August 19th, the same date, I note that you opened two bottles of Canada Dry Ginger Ale with the regular glazed paper spot and in that case you said the ginger ale had a full flavor.

A. Yes.

Q. 32. And that is the ordinary paper that you ordinarily used?

A. The regular glazed paper.

Q. 33. My understanding is that you keep opening these bottles from time to time to see what the condition of the cap is?

A. Yes, and the condition of the beverage.

Q. 34. And how long did you continue that investigation as to the quality of this particular thermoplastic cement? [fol. 643] A. Well, they were continued until about the end of the year, the first investigation, but we never actually stop running investigations on a laboratory basis. We still have some bottles, not one of the originals, but I still have bottles that were put up from time to time, maybe not more than a year and a half ago.

Q. 35. During 1932, what was the largest amount of foil that you coated with this 4620?

A. The largest amount of foil was probably what we would call half a roll or half a spool, which would be a spool about this size.

Q. 36. That is about 12 or 15 inches?

A. I think they are 12 or 14 inches, and the amount that I coated was approximately half a roll.

Q. 37. About how many feet would that be, give us some rough idea, a hundred feet?

A. I do not know, but it was more than a hundred feet, it was several hundred feet.

Q. 38. Do you remember making up any considerable quantity of spot crowns with this particular thermoplastic in 1932?

A. This largest lot that I just mentioned was taken to the assembling department, and part of it was run on the machine, more than ten gross, probably fifteen gross.

Q. 39. And what was done with them?

A. Ten gross was loosely packed and sent to the Chicago branch, and returned to our office in the original package.

Q. 40. What was that done for?

A. To see how they would hold up in transportation.

Q. 41. You say they were loosely packed; what is the effect of that kind of shipment ordinarily?

A. If the spots were not tightly stuck, they would have [fol. 644] a tendency to be shaken off, at least, in the edges.

Q. 42. Is there any difficulty if they are loose in the edges?

A. Yes.

Q. 43. What is that?

A. There would be trouble in the crown hoppers, I believe.

Q. 44. Of the capping machines?

A. Of the capping machines, they might be torn off, loose edges.

Q. 45. When was that ten gross shipped to Chicago?

A. I do not know the exact date; but it was sometime toward the end of the year.

Q. 46. That is, 1932?

A. I think November or December of 1932.

Q. 47. I show you an envelope containing some spot crowns, and ask you to state what they are.

A. They are the first crowns that were made up in the laboratory with thermoplastic cement. I made these up personally.

Q. 48. On what date?

A. Prior to the 20th, probably a day or two earlier.

Q. 49. That is, prior to January 20, 1932?

A. Yes.

Mr. Scull: I offer these in evidence as Plaintiff's Exhibit 78.

(Marked Plaintiff's Exhibit 78 in evidence.)

Q. 50. There is a writing on here in pencil, "Al. spot—du Pont 4620 Thermo Plastic cement 1/20/32." Do you know in whose handwriting that is?

A. That is in my handwriting.

Q. 51. When was it put on there?

A. On 1/20/32.

Q. 52. Have these caps been in your possession since that time?

A. Yes.

[fol. 645] ANDREW WEISENBURG, recalled as a witness on behalf of the plaintiff, in rebuttal, testified further as follows:

Direct examination.

By Mr. Scull:

Q. 286. Mr. Weisenburg, I hand you a box of caps and I ask you to examine them, as I understand you have already done, and state what they are particularly as to the spots on them—I mean what is their present condition, and what is the spot itself?

A. These are center spot crowns made by what I call the Stewart or Nielson method.

Q. 287. Or White Rock?

A. The White Rock method. Instead of using plain tin-foil there is gutta percha on the back of the tin-foil.

Q. 288. In other words that particular spot has a cap which is exactly like the White Rock cap except there is gutta percha on the back of the foil itself?

A. That is correct.

Q. 289. On those caps, is the gutta percha adhered to the cork—

Mr. Warland: If your Honor pleases, I do not see how this has any bearing on the case at all.

Mr. Scull: This is an attack, your Honor, on the possibilities of that 1925 work which they have testified about. I think the pertinency will appear sufficiently later.

The Court: I will take it.

Mr. Warland: Exception.

[fol. 646] Q. 291. If these caps, having thereon the White Rock type of spot, but with gutta percha on the foil and under it in contact with the cork, were run through a drum, and if heat had been applied to the top of the spot, the plungers of the drum applying pressure to the heated spot, would the gutta percha adhere to the cork?

Mr. Warland: I make the same objection, your Honor, calling for a hypothetical condition that has not been shown to exist anywhere in the case by either side.

The Court: I will overrule that objection, it is purely a matter of opinion.

Mr. Warland: Exception.

A. If these crowns were given the proper heat and then placed into the pressure drum quickly enough so that they were still hot when placed in the cold drum, they would adhere.

Mr. Scull: I offer this box of caps in evidence as a plaintiff's exhibit.

(Marked Plaintiff's Exhibit 79 in evidence.)

Q. 292. You told us, Mr. Weisenburg, that you were doing research work for the Crown Cork & Seal Company in Baltimore during what years?

A. From June 1st, 1930, until August of 1934.

Q. 293. While you were in that research laboratory did you do any work on cements for securing center spots to crowns?

A. I did.

Q. 294. By whose direction did you do it?

A. Mr. McManus's.

[fol. 647] Q. 295. Was he in touch with the work you did at that time?

A. I reported to him directly.

Q. 296. Was he in your laboratory frequently?

A. Every time he came to Baltimore.

Q. 297. How frequently was that?

A. Every week that he was in the country.

Q. 298. Did you keep him advised of the work you were doing and the progress you were making?

A. I reported directly to him.

Q. 299. Now, did you do any work on a cement having nitrocellulose or gun cotton and resin in it?

A. I did, sir.

Q. 300. For the purpose of sticking center spots to cork?

A. I did.

Q. 301. When was that?

A. Beginning October 13, 1931. I have notes where I combined first nitrocellulose with various forms of rubbers, natural gums and eventually with what is known as rezyl resin. This rezyl resin is the typical thermoplastic resin which gives thermoplastic properties to the nitrocellulose film.

Q. 302. And your natural gums I understand are also thermoplastic but to a lesser degree?

A. They are also thermoplastic but they are not as compatible with nitrocellulose as the newer synthetic resins.

Q. 303. Now, did you get any successful samples of adhesive for center spots?

A. I have here a note dated November 17, 1931, where I mixed one-half a second cotton with Singapore Dammar #2 in a ratio of two parts of Dammar to one part of cotton and I have a note here—O. K. mix, good stick. I then have a note, "Made up a solution of rezyl #11, 50-50," and that meant 50 parts of resin to 50 parts of cotton. I have also [fol. 648] a note, "Made up a solution of rezyl 33, 50-50, and added 10 grams of each to above with #33 tackier"—I say—"to the above 33, tackier than with #11, helps stick." Then I have a note that we used 5 parts of five second cotton to five parts of #11 rezyl and that gave a ratio of one part of cotton to two parts of rezyl." I have "O. K., good stick." Following that I have the following, "Five parts of five second cotton with five parts of #33 rezyl, O. K., better stick." Then I have "One part of cotton to two parts of rezyl."

Q. 304. Now, did you make up or have made up for you under your direction center spot crowns with that cement?

A. Our usual procedure—

Mr. Warland: If the Court please, I cannot see the materiality of this testimony in any way; it is simply cumbering up the record, as far as I can see. They are suing us

on a patent which they admit uses thermoplastic cement that they bought in the open market, the same as we did. What bearing has this man's experience had three or four years before on the issue?

Mr. Scull: It isn't three or four years before.

Mr. Warland: It is 1931.

Mr. Scull: It was just before we got the resin from the duPont Company. We are simply carrying back the date of invention.

Mr. Warland: Does he claim to be the inventor?

Mr. Scull: I am not trying to argue the case now; I do [fol. 649] not think we ought to at this time.

The Court: I will take it.

Mr. Warland: Exception.

A. The usual procedure after making a mixture was with brushes to coat the foil. We usually coated six or eight feet. We had an apparatus in the laboratory whereby we could apply these spots to the crown. We then, with a hot punch, determined the adhesive property of the particular mixture we were working with. These crowns then were stored. We had a particular room and place where everything that was done afterwards was put away.

Q. 305. Did you make them up in that way with this nitrocellulose resin cement?

A. I made them up in the identical manner described.

Q. 306. Who was your assistant in that?

A. Mr. Ira Wilbur.

Q. 307. Was Mr. McManus shown these cellulose resin cement spot crowns after you had made them?

A. He was.

Q. 308. Was he told what the cement was?

A. He was.

Q. 309. I think you said that your notes indicate that this particular cement that you read into the record was used in November, 1931.

A. November 17, 1931.

Q. 310. Mr. Weisenburg, you were here and heard the testimony of Mr. Benno Cohn as to an alleged operation of a spotting machine in the spring of 1925, were you not?

A. I was.

Q. 311. After Mr. Cohn had partly described that process on last Friday did you, under my instructions, go to Baltimore [fol. 650] more and start the arranging of a machine to

conform to the machine as he had described in his testimony?

A. I did.

Q. 312. And then subsequently you were here, were you, in the morning, during the day of the following Tuesday, when Mr. Cohn was under cross examination?

A. I was.

Q. 313. And you heard him give some further details of this machine which he said he used in 1925?

A. I was here and I heard him.

Q. 314. Then you went back to Baltimore under my instructions and completed the machine?

A. I did, sir.

Q. 315. Will you just describe the machine which you produced in this fashion?

A. Mr. Cohn—

Mr. Warland: I object to this; I can't see how that is competent or material.

The Court: If he can show that what your man said he did couldn't be done, it would be quite important. I do not understand the objection. Overruled, and you may have an exception. Proceed.

Mr. Warland: We had no access to this.

Mr. Scull: Of course you hadn't.

The Court: All right; that goes to the weight of it; it does not make it incompetent.

A. Mr. Cohn in his evidence described that he took a standard Clark Johnson assembling machine. He described—

Q. 316. Don't rehearse what he did, go ahead and tell us what you did; we can compare it later.

A. I went to Baltimore, where I found a standard John- [fol. 651] son assembling machine. In another department I found a spotting head of the Johnson type, that is, a center spot applying device. On this Clark Johnson assembling machine there was a device for applying paper collets of process paper into the shell to adhere to the cork disc. I had the mechanics remove this device and substitute there a center spot applying device. I had also constructed a heating device over the crown chute—

Q. 317. In the first place, what was the crown chute you had there?

A. The crown chute we had there was 24 inches long.

Q. 318. What did you do? Did you make any change in that?

A. I made a change in that; after hearing Mr. Cohn's testimony on Tuesday that the chute was 36 inches long, I called up Baltimore and directed them to alter the chute there and have it not less than 36 inches of heating surface on the crown chute. This was done.

Q. 319. Now, what about the heat over the rack, that is, at the point after the paper spot applying mechanism?

A. This was the identical heating mechanism which is on all Clark Johnson assembling machines.

Q. 321. And when you say assembling machines, you mean a machine used for putting the cork disc into the shell, and not the spotting machine?

A. That is correct.

Q. 322. What about the drum or dial at the end of the machine?

A. That was a standard Johnson drum, 48-plunger spring-actuated.

Q. 323. You did not make any change in that?

A. No change.

Q. 324. In other words, when you got through you had a [fol. 652] Clark Johnson assembling machine in which, in the place where the paper collets are ordinarily put in, you had a paper spot feed, and cutting punch, arrangement, and you had a long chute leading the crowns down to the dial, which was in advance of this spotting equipment, and you had gas heat on the 36 inches of this chute, is that right?

A. Yes, sir.

Q. 325. And then after the spotting the machine was exactly the same as a Clark Johnson machine in all respects except that you had suspended the operation of the cork inserting mechanism, is that right?

A. Exactly the same, except that I substituted a center spot applying device in place of the processed paper applying device.

Q. 326. And did you have any heat in the drum?

A. No heat in the drum.

Q. 327. Does that construction conform to your understanding of Mr. Cohn's description of what he said he had in 1925?

A. It does.

Q. 328. Have you any photographs of the machine as it was set up at that time?

A. I have.

Q. 329. Do these correctly represent the machine on which you made the tests about which I am going to inquire?

A. They do.

Mr. Scull: I offer these two photographs in evidence as Plaintiff's Exhibit 80.

(Marked Plaintiff's Exhibit 80 in evidence.)

Q. 330. What was the distance on this machine from the paper spotting attachment to the drum?

A. The distance from the center of the center spotting [fol. 653] exit to the entering punch of the pressure drum was exactly 36 inches.

Q. 331. And how much on the Johnson machine of this space is covered by the heaters?

A. On the machine I used the length was 15 inches.

Q. 332. Is that the regular type?

A. That is the usual distance. Some people may use a few inches more or a few inches less.

Q. 333. What arrangement did you have for supplying the heat to the chute; what about the gas supply?

A. The mechanics, in making up this heating arrangement which was over the crown chute found they could not get sufficient gas into the burner with one tube and it was necessary to place therein two, which can be plainly seen on the photograph.

Q. 334. How far does the cap travel from the time it passes the last heater on the chute until it reaches the center spot?

A. That dial is 12 inches in diameter which gives you a possible circumference of 36 inches and it runs one-half of that circumference, 180 degrees or approximately 18 inches.

Q. 335. Now, you were supplied with some rolls of coated tin-foil, were you not?

A. I was.

Q. 336. And you used them in the test which I am about to inquire about?

A. This part of the roll used in the test.

Q. 337. I show you Plaintiff's Exhibit 77 for identification and I ask you if you know what that is?

A. That is a remnant of the roll that I used in the test.

It is tin-foil approximately 3-1/2 to 4/1000ths thick, backed with surgical tissue and interlined with oil paper.

[fol. 654] Mr. Seall: I offer this Exhibit 77 for identification in evidence.

(Plaintiff's Exhibit 77 for identification now received in evidence.)

Q. 338. Now, did you make some center spot crowns on this machine which you have been telling us about which is shown in the photograph, Exhibit 80?

A. I did.

Q. 339. Tell us what you did.

A. Preliminary to running I ran the machine empty with the heat turned on—the burner above the chute. The actual length of this burner is 37 inches. I ran the machine empty with this heat on the burner for approximately one-half an hour.

Q. 340. What was that for?

A. That was to be sure that the chute had sufficient heat or a running condition, in other words an operative condition.

Q. 341. Then, what did you do?

A. After I considered the heat as high as would be feasible in practice so that it would not scorch the decorations I ran the crowns through the machine applying this particular foil described to the natural cork discs.

Q. 342. Where did you get the natural cork discs?

A. I had them taken out of the warehouse, they were a standard production, natural cork discs with paper backs.

Q. 343. You mean by paper backs—where the disc is fastened to the shell by means of a paper collet that has been stuck in adhesive?

A. Yes.

Q. 344. And adhesive which is heat-fusible?

A. That is correct.

Q. 345. What next did you do?

[fol. 655] A. I ran approximately 30 to 40 gross and then I took a sample from the last part of the run.

Q. 346. Were you using this foil of Exhibit 77 in this test?

A. I was.

Q. 347. Then, what did you do?

A. While the run was still on, to get the other condition described, that is the possibility of heat over the rack—

Q. 348. As well as on the chute?

A. As well as on the crown chute, I stuck my finger in the rotating dial stopping the feeding of the crowns so that I would have an empty space to differentiate the first test from the second. I then turned on the heat over the rack. I then had this condition, I had 37 inches of heat on the crown chute and 15 inches of heat on top of the spotted crowns into the rack. These had entered the cold pressure drum.

Q. 349. Now, what degree of heat on each of those two tests, did you have on the crowns as they came down the chute?

A. In starting the test when I began to run the crowns I turned on the heat until the cork discs were turned black—burned—and I then regulated the heat from what I thought was the maximum amount of heat that I could put into the cork disc without scorching or damaging it.

Q. 350. And does the same thing apply to the heat which in the second test you put on the spots as they went along the rack?

A. Practically the same condition except for this; in applying the heat to the foil I had to be careful that there was not too much heat to turn up the edges, I crowded all the heat in that I could possibly get.

[fol. 656] Q. 351. Did you have any way of indicating what the amount of heat was? Supposing there was no spot on the crown, what happened?

A. It was indicated by the fact where the spotting mechanism failed to function it turned the cork black—burned. When the spot was on the cork this would not happen.

Q. 352. In other words you had enough heat on that crown after it had left the spotter or spotting attachment so that unless the foil was actually on there it would scorch the cork, is that right?

A. That is correct.

Q. 353. Now, have you any samples which you made in these two tests?

A. I have.

Q. 354. Will you produce them. First let us have the one where you had heat on the chute only.

A. Right here (handing to counsel).

Q. 355. You have handed me a bag marked, "Regular production natural cork paper-backed crowns, heat on the

37-inch crown chute only, low pressure gas, 160 r. p. m's, November 14, 1935." That I assume is in your handwriting?

A. It is.

Q. 356. Did you make that entry at the time that you made the tests?

A. I did.

Q. 357. This bag shows some of the crowns which you made in the first test under the conditions indicated, and what I have just read into the record?

A. It contains what I consider a representative sample of the run.

Q. 358. What part of the run were these taken from?

A. From the end of the run.

Q. 359. After you had made a great many others on that same run?

A. That is correct.

[fol. 657] Mr. Scull: I offer this in evidence as a plaintiff's exhibit.

(Marked Plaintiff's Exhibit 81 in evidence.)

Q. 360. I note, Mr. Weisenburg, that many of the crowns in this bag which is now Plaintiff's Exhibit 81 have no spots on them. Did they all have spots on them when you put them in this bag?

A. They did.

Q. 361. Why then are they missing on some of them?

A. Because the center spotting operation as performed was not satisfactory or did not function properly.

Q. 362. Were there spots on them at one time?

A. There were.

Q. 363. They have since come off?

A. They have come off.

Q. 364. After you put them into this bag, how have these caps been treated?

A. I brought them to Brooklyn and I kept them in my room in my possession.

Q. 365. That is they have not been subjected either to any unusual heat or unusual cold or any unusual handling?

A. They have had the proper treatment, that is, they have not been touched.

Q. 366. In carrying them around in this bag, is that about the equivalent of loose packing of crowns as they are ordinarily shipped?

A. More or less it is.

The Court: The spots that came off are still in here?

The Witness: Yes, your Honor.

[fol. 658] Q. 367.—Now, some of these spots are adhering, are they not?

A. They are.

Q. 368. And have you examined a considerable number of them?

A. I have.

Q. 369. In your opinion, would it be possible to use these crowns in this condition in a bottle capping machine?

A. You could not use this material in a modern capping or bottling machine, in any crown feeding mechanism, the spots would come off.

Q. 370. Is the bottling capping mechanism used today any different in principle or general arrangement than what was used in 1925?

A. The principle is exactly the same, there are some refinements. The usual crown hopper of a bottling machine will carry up to 30 or 40 gross of crowns and are agitated by a rotating member. They usually have on this rotating member fingers springing back so as not to damage the crowns. The crown hopper is so designed that the crowns will come down all in one direction.

Q. 371. With the cork side up?

A. With the cork side up or with the shell up.

The Court: Whichever way you arrange that?

The Witness: Whichever way you desire them to come up. In running, in agitating these machines today the machines run as high as 116 a minute. The usual small plant may only cap 30 or 40 bottles a minute, but the hopper will rotate at 30 or 40 revolutions a minute more or less.

These spring actuated fingers in the hopper base which is [fol. 659] rotated will make the crown shells enter the proper position so as to run down the crown chute all in one direction. This means they are agitated, there is a tendency of the edge of the metal shell during that time to catch the edge of the small diameter facing this, and lift them from their position.

Q. 372. Now, in practice, what is the fact as to the surfaces of these spots, I am talking about the regular commercial practice, is there any evidence of marking on the face of

those spots after they have gone through the capping machine showing that the edges of other crowns have wiped across?

A. It is obvious when you have a soft material like tin-foil and a little harder material like aluminum, and you have the metal edges of shells hitting against them they are going to make that metal disc.

Q. 373. Is the construction of those capping machines as far as this crowning attachment is concerned any different today from what it was in 1925?

A. Substantially no different.

Q. 374. By the way, I think there was one thing I did not ask you about. In this test machine that you have in Baltimore, at what speed did you run it in making these crowns in Exhibit 81?

A. I had this machine connected to a Llewellyn drive which enabled me to get the exact speed I wanted.

Q. 375. What was that?

A. 160 revolutions per minute, which in other words enables you to spot 160 crowns per minute.

Q. 376. And that was the speed at which you understood Mr. Cohn to say that he had operated this machine which [fol. 660] he says he operated in 1925?

A. That was my understanding.

Q. 377. Now, have you any samples of the tests that you made where you had heat on both the chute and the rack, and if so, will you produce them?

A. I have (producing samples).

Q. 378. You have handed me a bag bearing the notation, "Rack production metal cork paper back crowns heat on 37-inch crown chute heat on 15-inch strip heater over rack. Low pressure gas 160 r. p. m. November 14, 1935."

These contain the spots made under the conditions indicated on the envelope that I have just read into the record, is that right?

A. That is correct.

Q. 379. Were these also taken from the end of a comparatively long run that you made?

A. They were.

Mr. Scull: I offer this package of spots in evidence as Plaintiff's Exhibit 82.

(Marked Plaintiff's Exhibit 82 in evidence.)

Q. 380. Similarly I note in some cases here there are no spots on the crowns. What is the fact as to the original condition before these crowns were put into this bag, did they have spots on them?

A. Practically all of them.

Q. 381. Well, all of these went through the spotting apparatus?

A. All of them went through the spotting apparatus.

Q. 382. And all of them had a spot brought down on them?

A. That is correct.

Q. 383. And I suppose the reason they are not here now [fol. 661] is because they have become loosened, is that right?

A. I imagine so.

Q. 384. I notice that in a number of cases here the spots are badly out of center, was that more or less a characteristic of the run?

A. It is.

Q. 385. That is, it occurred with any considerable frequency, did it, in the operation?

A. Quite frequently.

Q. 386. In the second test my understanding is you had the heat on to the same degree so far as the chute is concerned that you had on the first test?

A. That was not altered in the run.

Q. 387. And the heat in the second test so far as it was applied along the rack was as high as you could get it without injuring the foil, is that correct?

A. That is correct.

Q. 388. And this bag, I suppose, also was brought up by you from Baltimore personally and has been in your possession ever since in the hotel?

A. That is correct.

Q. 389. And it hasn't been subjected to any undue harsh treatment?

A. No.

Q. 390. Have you examined a considerable number of the caps made in these tests which resulted in Exhibits 81 and 82?

A. I have.

Q. 391. What would you say as to the commercial possibility of using the caps of either of these tests in capping machinery?

A. The first test where I had heat on the chute alone, you could not send them out of the factory; they are valueless. In the second test with heat on the chute and heat on the rack, they are a little better but they are not what I consider commercially stuck. They could not be kept in storage, they could not be sent through transportation, and they [fol. 662] could not go through the hopper and function as our standard product must function.

Q. 392. If some of these caps of Exhibit 81 or 82 which have the centers adhering to them sufficiently to hold them in place and where the spot is centered were again passed under considerable heat over a rack on an assembling machine and then through the drum and under the cold plunger; would that improve the adherence of the spot to the cork?

A. If you applied the heat properly and close enough to the pressure drum it would increase the adhesive properties of this material.

Q. 393. You think it might be done to such an extent you could get by with it, do you?

A. I do.

Q. 394. And I presume I should have asked you this, on the second test you also ran it at 160?

A. The same speed, same crowns.

The Court: Why was it there were so many off center?

The Witness: Due to the fact that this material is not properly tacky, and the heat was not applied at the proper place. You have 18 inches in that rotating dial, you have 5 inches from the edge of the rotating dial to the center spot applying mechanism, that is approximately 22 or 23 inches. In this period the crown cools sufficiently that it is not hot enough to keep that spot in its position. You have a stop and go motion.

Q. 395. Mr. Weisenburg, in this particular case you were using a solid smooth-faced punch, were you not?

A. I was.

[fol. 663] Q. 396. Do you remember Mr. Cohn's testimony was that on some of their present machines they use that sort of thing; but they also use a cutter and punch in which the cutter has been hollowed out and there is a pressure inside of it so that the spot, while it is cut out the full diameter by the outside of the punch, of course the presser does

not extend to the periphery of the spot. You understand that construction, do you not?

A. I do, sir.

Q. 397. My recollection is that in this 1925, about which he has testified, that this latter was the form which was used. Now, what, in your opinion, would be the difference, if any, in the results obtained if you had used that later type of cutter and presser?

A. Why, it is obvious to my mind where you push a spot on the heated cork with a full diameter of that spot you are bound to get a better adhesion than where you apply it to the heated cork with one of lesser diameter.

Q. 398. In other words, with the two-section, or with the internal plunger type, the sticking at the edges would be wholly dependent upon the amount of heat which you would get into the spot, plus the pressure of the drum plunger, is that right?

A. Correct.

Q. 399. Whereas, with the arrangement which you had, the edge got the same pressure as any other part initially by the punch?

A. That is correct.

The Court: His method would be more likely to center them, wouldn't it?

The Witness: No, sir.

[fol. 664] The Court: Because it would be sloppy at the edge?

The Witness: Because the centering property is due entirely to the tackiness of the particular adhesive you are using. You see, if you are running, let us assume, at 180, which would be three a second, you have just that instant to place that center spot there. The material must be tacky enough to stay there until you come to the next station, where you can bump it again and keep it there. The initial placing of the spot on the cork is rarely sufficient to keep the spot in its place, it must be immediately re-pressed, and then go into a presser dial so as to set that under pressure. That is the function of very thermoplastic cement.

Q. 400. In other words, as I understand you, and further answering his Honor's question, the spot is always placed centrally initially, is it not?

A. Absolutely.

Q. 401. And that is, because the mechanism is such that it is bound to strike there?

The Court: But I thought that small area pressed might perhaps cause it to remain on center for the next stop rather than where the pressure was extended over a larger area with the possibilities of its not taking effect throughout the whole area.

Q. 402. This punch, as I understand it, is driven downward positively, is it not?

A. Yes.

[fol. 665] Q. 403. So that you have the full power of the machine back of it?

A. Yes.

Q. 404. Now, have you also brought to us some spot crowns made recently on the regular machines of the plaintiff, using tin-foil, and on the same crowns, that is, the natural cork crowns that you have used in making Exhibits 81 and 82?

A. With the coated tin-foil and surgical tissue I also had the identical tin-foil uncoated. I took this with me to Baltimore, where I combined it with our standard gutta percha. I then ran it in our standard center spot machine with the identical crowns out of the same box that I used on the other two tests, and I ran them at 520 per minute. These are the crowns. (Handing to counsel.)

Q. 405. The bag you have handed me is marked "Regular C. C. and seal G. S. Operation natural cork processed, same foil—tin and usual tissue."

A. No, the same tin as used on the tissue test.

Q. 406. "The same tin as used on the tissue test and standard gutta percha 520 r. p. m's, November 12, 1935."

A. Yes, sir.

Mr. Scull: I offer that in evidence.

(Marked Plaintiff's Exhibit 83 in evidence.)

Q. 407. Now, in comparing the spots of this Exhibit 83 with the spots of Exhibits 81 and 82, aside from the difference, if any there may be in resistance to the moving, is there anything that physically indicates the difference in the adhesion?

A. One of the usual tests in the adhesive properties of [fol. 666] spots adhered with gutta percha is the tackiness

or the draw when you pull the metal foil from the cork crown.

Q. 408. Now, when you pull one of these crowns of Exhibit 83 what is the effect so far as the gutta percha is concerned?

A. It more or less sticks to the cork disc.

Q. 409. And what is the fact so far as these crowns of Exhibit 82, for instance, which had the heat on both the chute and the rack?

A. It does not adhere to the cork.

Q. 410. Now, in making spot crowns, what would you say as to the effect of speed on any given set of conditions, so far as adherence is concerned--is it easier to make the spot adhere at a slow speed than at a high speed?

A. It is easier at a slow speed.

Q. 411. Why is that?

A. Why, you can have better control, you can get better heat control, and your mechanism is running much slower, and it is easier to function at 160 or 200 than at 520.

Q. 412. And you have a longer dwell of your plunger?

A. Yes, your entire cycle is slowed up in that ratio.

Cross-examination.

By Mr. Warland:

X Q. 413. I believe you told Mr. Scull that in 1931 you were experimenting, under the direction of Mr. McManus, on some thermoplastic cement; is that correct?

A. That is correct.

X Q. 414. And that experiment was not very satisfactory, was it?

A. I marked it "Very good stick" in my notebook.

X Q. 415. Well, if that was a good stick why did the [fol. 667] Crown Cork & Seal Company buy No. 4620 duPont?

A. I had nothing to do with that.

X Q. 416. Now, you say you saw some machines of the Crown Cork & Seal Company of the standard Johnson type. What do you mean by that?

A. I said they have the Clark Johnson assembling machine.

X Q. 417. Such as has been used for years?

A. Such as has been used for years and they also had a

screw cap department; and in the screw cap department this 31-millimeter center spot machine.

X Q. 418. I simply asked you whether they had the Clark Johnson machine?

A. And I answered it, I think.

X Q. 419. And they used that while you were there in 1930 and 1931?

A. They may have, for all I know.

X Q. 420. Now, you have produced some caps here. As I understand you, you got the heat very great and some of them are scorched, is that right—in your experiments?

A. That is right.

X Q. 421. Have you any of those scorched discs here?

A. I believe there may be some in there.

The Court: Some what?

Mr. Warland: Where the cork was scorched by the excessive heat, your Honor.

X Q. 422. Well, this cork that came out of one of these bags from 81 or 82, has on the back of it Cerveza Diamante, and all crown caps that you experimented with here recently have that name on the back?

A. They are all out of the same box.

[fol. 668] X Q. 423. Now, the cap that I hand you is one that came out of one of those bags. Is there any evidence of scorching on the cork there?

A. No, sir.

The Court: I understood him to say that these exhibits came from the last run and the scorching occurred when he was experimenting before he started that final run. Maybe I am dense, but that was my understanding. (To witness): Is that what you said?

The Witness: That is correct.

X Q. 424. So you did not bring any scorched ones here?

A. There may be, I don't know.

X Q. 425. But the ones you did produce, you did not mean to have them scorched?

A. Of course not.

X Q. 426. Now, will you please feel the facing on that cork; hasn't that been waxed?

A. This is our regular production natural cork crowns that has gone through the processing, the waxing operation.

X Q. 427. Do you wax all your center spots in the Crown Cork & Seal Company?

A. We do not; we give them a very slight waxing.

X Q. 428. All of them?

A. All of them.

X Q. 429. What is that for?

A. It is to help the feeding of the cork disc into the cork hopper. Where you do not wax the cork disc slightly there is a terrific abrasion and resistance to the composition. It is very hard to feed composition cork disc in the assembling without some wax on the cork..

[fol. 669] X Q. 430. You can tell by the feeling of that that there is wax on it, can't you?

A. Yes, I am very familiar with this operation.

X Q. 431. Well, isn't that waxing to prevent—or primarily to prevent—oxidation of the cork, to prevent its discoloration?

A. I could write a thesis on that.

X Q. 432. I am just asking you to say yes or no, not write a thesis. Isn't it a fact that that waxing is on there for the purpose of preventing oxidation and discoloration of the cork?

A. To help prevent discoloration, but when you say oxidation you will have to define that much better before I can answer you.

X Q. 433. It is put on them for the purpose of preventing discoloration, is that right?

A. That is correct.

X Q. 434. Now, you were speaking of the amount of pressure, or rather, the difference of the amount of pressure where the plunger would go the entire diameter of the crown cap and where the plunger was smaller and only covered the center spot. Isn't it a fact that all these crown caps are somewhat curved on the top, in other words, there is not a perfectly flat surface, isn't that right?

A. You mean the cutting die as used?

X Q. 435. Isn't the crown cap itself curved somewhat?

A. Absolutely, it has a radius.

X Q. 436. So that if the pressure went all over the crown cork it would not adhere in the center as strongly as it would on the side?

A. But the center spot is not adhered to the shell, but to the cork.

X Q. 437. But the amount of pressure that comes down, [fol. 670] if it is directed entirely on the center spot, it presses harder on that center spot and adheres more than it does when the pressure goes the full circumference of the shell?

A. I cannot agree with you.

X Q. 438. I show you another one that came out of one of your exhibits here. Hasn't that got a depression or a scoring mark where the center spot plunger has hit it?

A. That is the mark that the center spot plunger made on the cork disc, that is correct.

X Q. 439. And that plunger is applied more forcibly there, hits that particular spot harder than as though the plunger were large enough to go the entire area of the cork?

A. I am sorry, but I don't understand that question.

X Q. 440. All right, if you have a small pressure spot plunger and pressure is exerted on that one particular spot it adheres very tightly there, doesn't it?

A. Yes.

X Q. 441. Now, when you said you applied heat on this machine where you say you carried out the same process you heard Mr. Cohn describe, did you try to retain that heat in any way, I mean did you put anything over the gas flame to keep it nearer the operating parts or didn't you?

A. As I stated before I had 37 inches of heating element. I have here a drawing in the exact dimensions. There were 96 holes $\frac{3}{8}$ ths of an inch apart drilled with a No. 53 drill and the overall length of the burner was 57 inches.

X Q. 442. You did not put any hood over the pad in trying to keep that heat in one particular place?

A. In what place are you talking?

X Q. 443. Prior to the time that the cork disc entered the [fol. 671] spotting attachment.

A. There was the usual cover on this rotating dial that is on all the Johnson machines. It is a cast iron cover with a slot approximately $\frac{1}{2}$ an inch in the opening. In other words the crowns are confined in this slot which is placed on the rotating dial. You can probably see it on the pictures there.

X Q. 444. But you did not take any means to keep that heat concentrated on the cap before it got to the spotting attachment?

A. All I could do or could have done was to cover that half inch slot in the center, outside of that it was covered.

X Q. 445. You have produced a box of caps marked Plaintiff's Exhibit 79 which is as I understand you one where the center spot was inserted in accordance with the old Millis type, namely, flange bit into the cork and also gutta percha was used. Now, if the gutta percha was properly applied, of course, the spot would stick without that flange, wouldn't it?

A. When the gutta percha was properly applied you would not need that flange.

X Q. 446. Here is one of the caps that was taken out of this box Exhibit 79, does the flange show through the cork disc?

A. You can see a mark on the back of the disc of the circular scoring knife.

X Q. 447. I show you a cap that was shown to Mr. Reed of the Gutta Percha Company this morning to which he secured while on the stand a strip of foil with surgical gutta percha. That adheres to the cork, does it not, to a very considerable extent? Don't pull it off, don't pull it all off, pull half off if you like.

A. It adheres to the cork to some extent, yes, sir.

[fol. 672] X Q. 448. Of course, if the cork was heated more or if the foil was heated more and considerable mechanical pressure was applied it would adhere a great deal stronger, wouldn't it?

A. It certainly would.

Mr. Warland: I offer that cap in evidence.

(Marked Defendant's Exhibit FFFFFF in evidence.)

X Q. 449. When you made these tests runs at Baltimore recently, did you apply heat and pressure simultaneously?

A. Where?

X Q. 450. Anywhere.

A. I applied heat and pressure simultaneously to this extent that whatever heat was available in the cork disc when it got under the center spot mechanism I applied pressure there and heat.

X Q. 451. Did you have a hot cutting punch?

A. I had a cold cutting punch.

X Q. 452. I show you a letter on the letterhead of the Standard Crown Company, dated January 6th, 1935, is that your letter?

A. That is my letter and my writing.

X Q. 453. I show you another letter dated February 4, 1935, addressed to Mr. Gutmann, was that your letter?

A. This was written to Mr. Gutmann en route west.

X Q. 454. And Gutmann & Company, Mr. Gutmann or Mr. Cohn asked you what you could tell them about this old Standard Seal or American Cork & Seal cap?

A. They did.

X Q. 455. And these letters were written after the conversation that you had?

[fol. 673] A. After telephone conversations where they tried to meet me.

Mr. Warland: I offer the letters in evidence.

(Marked Defendant's Exhibit GGGGG in evidence.)

Redirect examination.

By Mr. Scull:

R. D. Q. 456. The machine which is shown on Exhibit 80, the photograph, Exhibit 80 is still in the same condition as shown in those photographs in Baltimore, is it?

A. It is, sir.

R. D. Q. 457. And could you repeat the tests which you had here in the presence of other people, the other side if they wish?

A. I can.

Mr. Scull: I now make the offer to repeat those tests at any time to the other side. I think it would be obvious, your Honor, we couldn't very well have inter-party tests in view of the time which we had to do this in.

R. D. Q. 458. About how many hours' work, how many mechanics did you have, do you suppose you have had since last Friday to change over this Clark-Johnson machine into the condition shown in the photographs, Exhibit 80?

A. I had as high as 12 men working on this job.

R. D. Q. 459. Did they work Sunday?

A. They worked Sunday, they worked all day Saturday until midnight, they worked all day Sunday until midnight and Monday, and, of course, Tuesday I called them up at [fol. 674] the recess about quarter after one and told them

to change the hopper, the crown chute so I would have over 36 inches of heating on the crown chute. They worked all day, and I arrived, I left here on the 5:35 train and I arrived at Baltimore at 8:45, was in the plant about 9:10, and we worked until I think it was the 2 o'clock sleeper that I came back on to New York. Of course, the machine was in working order when I got there.

R. D. Q. 460. Some questions have been asked you about pressure of this crown in making these tests. What is the fact so far as the pressure per unit of area is concerned if a punch is pushed down positively, does it make any difference whether the area of the punch is large or small under such conditions?

A. I may not be correct, this is pretty fast. I think that if you apply a certain amount of pressure, whether the diameter for example were one-half inch or one inch, I think the total amount of pressure applied would be the same.

R. D. Q. 461. What is the limit when you bring a punch down on top of this crown, what is the limit of pressure so far as possibilities are concerned?

A. You mean in actual production?

R. D. Q. 462. Yes.

A. Well, we tried—

R. D. Q. 463. I do not mean in pounds, but isn't there something which determines that, can you squeeze it indefinitely?

A. No, you cannot.

R. D. Q. 464. What is the limit?

A. In the first place these crowns are held on a cold roll flange, in other words we have only got a little bit of adhesive holding the crowns.

R. D. Q. 465. In other words the crown is supported at [fol. 675] the side and not in the center?

A. Not in the center.

R. D. Q. 466. So whether it is curved or flat on the bottom does not make any difference?

A. Yes. Of course, we have a punch underneath here to help hold it in position, a standard punch underneath, so if you inadvertently hit it too hard it won't jump out of these little slides. That is standard on almost every machine of this type. We try in center spotting to put as much pressure as we can with this punching operation and

applying operation so we have a direct contact with the cork and thermoplastic adhesive.

R. D. Q. 467. Is there any limit as far as the cork itself is concerned?

A. Yes, there is a limit.

R. D. Q. 468. You couldn't go on pressing the cork indefinitely?

A. No, you would touch the crown.

R. D. Q. 469. It would collapse, the cork would collapse?

A. No, it would come back but you would distort the shell.

R. D. Q. 470. And that would be true regardless of whether the area of pressure were large or small?

A. I think so.

R. D. Q. 471. You saw Mr. Reed make this test which resulted in Exhibit FFFFFF?

A. I did.

R. D. Q. 472. You saw him hold the gutta percha in the flame of a match until it was softened?

A. I did.

R. D. Q. 473. And then he applied it to the cork?

A. Yes.

Mr. Warland: The tin-foil.

R. D. Q. 474. The tin-foil to the flame of the match?

A. Yes.

[fol. 676] R. D. Q. 475. Is there any such operating condition possible in a crown cork spotting machine?

A. That is where you heat the foil?

R. D. Q. 476. Well, heat with a direct flame on it in that fashion. For instance, did you notice how long it was that he held that foil in the flame?

A. I did.

R. D. Q. 477. How would that compare with the time you would have in a machine at 160 a minute.

A. Well, you would have 160 a minute, you would have 15 inches of heating above them, and the average distance between the crowns is approximately an inch and a half. That would give you 10 crowns, that would be 1/10th of 160.

R. D. Q. 478. 1/16th of a minute?

A. 1/16th of a minute you would be heating.

R. D. Q. 479. What would be the difference, if any—

The Court: A little less than 4 seconds.

R. D. Q. 479. What would be the difference, if any, in applying the heat of a flaming match to the foil with the foil out in the air and applying that same flame to the foil which is down on top of a crown?

A. There is quite a distinctive difference, because we have found in the many tests we have made that taking any thermoplastic and heating it in the open air is quite distinctive than when confined over the cork. In heating you generate gases, the tendency is to lift up, lift the foil up in the cork. Another feature in heating in this manner is in going over the rack your heater is in straight line, and there is a limit in the amount of heat you can apply because if you apply [fol. 677] too much you will burn the area beyond the center spot. So it is usual to use a spot heater for that purpose, which is the diameter, a little less than the diameter of the center spot disc.

R. D. Q. 480. You mean a plunger, a heated plunger?

A. A heated plunger that is just slightly under the diameter of the center spot disc. That enables you to apply much more heat in a defined area than by any strip heating method.

R. D. Q. 481. By strip heater you mean that long gas flame where the spot is traveling under it?

A. That is correct.

Mr. Scull: That is all.

Recross-examination.

By Mr. Warland:

R. X Q. 482. You, of course, know of radiant heat, don't you?

A. Of course, I do.

R. X Q. 484. All right now, if you have enough heat to make a thing stick, it doesn't make any difference whether you get it from radiant heat from some part of the machine or whether you get it from one specific point such as a match, does it?

A. In heating in any manner whatsoever the effective amount of heat, that is the effective heat depends entirely—rather let me say the effective amount of heat available for using for adhesive purposes depends entirely on how you apply it. Now, I am not competent this quickly to answer your question and say that radiant heat or any other type of heat would be any more efficient. I am only concerned in

the effective heat that is applicable for use when we are center spotting.

[fol. 678] R. X Q. 486. Of course, you have got to get a certain amount of heat to make the gutta percha stick?

A. That is true.

R. X Q. 487. And if you get that amount of heat from some part of the machine that is sufficient, isn't it?

A. If you have a proper amount of heat and apply it at the proper place it will work.

R. X Q. 488. And as I understand the substance of all your tests in which you tried to controvert Mr. Cohn's testimony, your great trouble was that you didn't have enough heat, is that correct?

A. I could not get enough heat with the thermoplastic given me which was surgical tissue to effectively operate such a machine.

R. X Q. 489. Do you say surgical tissue has to have more heat to adhere than the ordinary kind of gutta percha?

A. I think so, about 20 degrees.

R. X Q. 490. Just a mere difference of 20 degrees?

A. That 20 degrees is an awful lot.

R. X Q. 491. You have during your career both as an engineer and a chemist, of course, conducted experiments on a great variety of subjects, haven't you?

A. I think so.

R. X Q. 492. Isn't it true that most of those experiments take a long time before you get successful results?

A. That is true.

R. X Q. 493. You wouldn't condemn a thing just because you tried an experiment for a few days and it didn't work out right?

A. You are talking now about any experiment?

R. X Q. 494. Yes, I am talking about any experiment.

A. That is true.

[fol. 679] SCOTT IRA WILBUR, called as a witness on behalf of the plaintiff, in rebuttal, having been duly sworn, testified as follows:

Direct examination.

By Mr. Scull:

Q. 1. Where do you reside, Doctor?

A. I wish to correct you, I am not a doctor.

Q. 2. Mr. Wilbur, where do you reside?

A. Baltimore.

Q. 3. And you are employed in the Crown Cork & Seal Company plant there?

A. I am.

Q. 4. As a chemist?

A. Yes, sir.

Q. 5. Are you a graduate chemist?

A. No.

Q. 6. What has been your chemical education?

A. I am a matriculated student at Johns Hopkins University. I have taken general chemistry, qualitative chemistry, medical chemistry, and an advance course in physical chemistry.

Q. 7. Now, in your employment in plaintiff's plant you are in the research laboratory?

A. Yes.

Q. 8. You work under Dr. Warth at the present time?

A. No, sir.

Q. 9. You did work under him at one time?

A. I did.

Q. 10. Did you ever work under Mr. Weisenburg?

A. Yes.

Q. 11. In the laboratory which he had there?

A. I did.

Q. 12. When did you go in Mr. Weisenburg's laboratory?

A. That was about the middle of 1931, as I remember it.

Q. 13. How do you fix that?

[fol. 68C] A. Prior to that date I had charge of all the varnish material that the Crown Cork & Seal Company purchased; in other words, my duty was to control that. At that time we started a varnish plant and I was transferred to Dr. Warth's laboratory to the research department to do work in the varnish plant which was established at that time.

Q. 14. In this establishing of the varnish plant it threw you out of the work you had done before, and you were therefore transferred to Mr. Weisenburg's laboratory?

A. Yes.

Q. 15. Mr. Weisenburg has told us of some tests of nitrocellulose and resin cement. Do you know anything about them yourself?

A. Yes.

Q. 16. What did you have to do with that, if anything?

A. Mr. Weisenburg and I worked together on a great many things. One would do one thing and the other fellow would do another part of that same operation, and in conducting those experiments on nitrocellulose, for instance, he would make up the formulas and I would test it.

Q. 17. Do you remember making these actual tests in nitrocellulose and resins?

A. I do.

Q. 18. And you remember using gun cotton in connection with those tests?

A. I do.

Q. 19. What is your recollection as to the character of the cement so far as the adhesion is concerned?

A. Well, we tried a number of things, of course some were not as compatible as others, but we found where we used synthetic resins we got some very good results.

Q. 20. Were you present in Baltimore at the time that this machine shown in the photograph marked Plaintiff's Exhibit 80 was operated, as Mr. Weisenburg has just [fol. 681] testified, and when the caps marked Plaintiff's Exhibits 81 and 82 were made?

A. I was.

Q. 21. And you heard his testimony this morning as to that machine and its operation?

A. I did.

Q. 22. You were there as an observer, were you?

A. Not only observed, but I assisted in the experiment.

Q. 23. So far as the degree of heat and the way it was applied and the way the spots were fed, the character of the machine, the spot machine, would your testimony be the same as that of Mr. Weisenburg in respect to those tests?

A. It would, identically.

Cross-examination.

By Mr. Warland:

X Q. 24. When did you first use nitrocellulose in your experiments for an adhesive?

A. You mean as a thermoplastic adhesive or just as an adhesive?

X Q. 25. As an adhesive for use in center spot crowns?

A. My recollection is that my first experience with thermoplastic cement using nitrocellulose was about back in November of 1931, but I don't remember the exact date.

X Q. 26. You did not know anything about 4620 in those days?

A. I was not familiar with that myself, no.

X Q. 27. How long were these experiments run that Dr. Weisenburg has testified to, I mean the machine experiments that were made within the last few days?

A. How long were they run?

X Q. 28. How long did the experiment take?

[fol. 682] A. Well, one experiment took about, well, let me see, about three hours. Another experiment took about approximately two hours.

X Q. 29. Is that all?

A. Of course, we made two different runs, that was counting the total experiments run.

GEORGE GOEBEL, recalled, testified further as follows:

Direct examination.

By Mr. Scull:

Q. 478. You were in charge of production of spot crowns in 1925 at the Crown Cork & Seal Company plant in Baltimore, were you not?

A. Charge of production equipment machinery.

Q. 479. And were you familiar with the production of spot crowns yourself?

A. Yes.

Q. 480. And you noted the character of spot crowns that were produced in 1925, did you?

A. I did.

Q. 481. And have you a knowledge of the degree of adhesiveness and how the spots stuck on?

A. I have.

Q. 482. And have you at my request—I am speaking now of tin-foil spots, which I understand were the only thing which you used in 1925.

A. That is correct.

Q. 483. Have you, at my request, examined the spots on crowns marked Exhibits 81 and 82—those of the Weisenburg test?

A. I have seen those.

Q. 484. And did you examine them?

A. I looked at them.

[fol. 683] Q. 485. And what would you say as to the commercial practicability and availability of the spots on the crowns of these two exhibits 81 and 82, in 1925? Could they have been used commercially?

A. No, these could not have been used commercially.

FREDERICK ERWIN FUSTING, recalled on behalf of the plaintiff, in rebuttal, testified further as follows:

Direct examination.

By Mr. Darby:

Q. 172. Mr. Fusting, when did the plaintiff first have any knowledge that the defendant was using a spotting machine in which the cork is heated in advance of the deposit of the spot on the cork?

A. In August of 1933.

Q. 173. You refer to a visit that there has been testimony about, to the defendant's plant?

A. Yes.

Q. 174. Prior to that the plaintiff had no knowledge that the defendant was using such a method?

A. So far as I know, they had not.

Q. 175. There have been some invoices put in evidence regarding the purchase by the plaintiff from the John A. Johnson Machine Works, in 1929, of a number of spotting machines. Do you know why those spotting machines were purchased?

A. They were purchased for shipment to Canada. Ordinarily we made all our production equipment, practically [fol. 684] all of our production equipment, such as assembling machines and spotting machines, in our own plant.

Q. 176. Do you know why you did not make these?

A. We did not make them at that time because we had a large schedule in our machine shop for various foreign plants.

Q. 177. And had Canada requested that you have some machines built for shipment to them?

A. I had had considerable discussion with the Canadian management and they wanted to get machines such as we were using in Baltimore, and we could not take them out of

production, nor did we have capacity at the time to build them in the shop.

Q. 178. And you asked Mr. Johnson to build these machines for you?

A. I had them ordered through the purchasing department.

Q. 179. Are you familiar with the circumstances surrounding the filing of the so-called divisional reissue patent 1,967,195 in suit, which was during its prosecution in interference with the Johnson patent 1,852,578?

A. I am familiar with it to this extent, I recall that you brought that Johnson patent to my attention I think the early part of 1933.

Q. 180. How long was that before the interference with Johnson was provoked?

A. My recollection is that the interference was provoked very shortly after that.

Q. 181. That was the first time you knew of the Johnson patent, with these method claims in it?

A. Yes.

Q. 182. Is the John A. Johnson Machine Works in any sense a competitor of the plaintiff in the manufacture of machinery for making crown caps?

A. No.

[fol. 685] Q. 183. Does the plaintiff sell crown cap making machinery to other crown manufacturers?

A. No.

Q. 184. Have you ever been through the crown manufacturing plants of any of your competitors in the United States?

A. I visited the Gutmann plant in 1933.

Q. 185. Aside from that?

A. I did not go through the plant at that time.

Q. 186. Aside from that visit?

A. I have seen, I think, a small portion of the plant of the Crown Manufacturing Company.

Q. 187. And do you know whether it is common practice for persons connected with the plaintiff company to examine or inspect plants of competitors in the industry?

A. No, it is not, with one possible exception.

Q. 188. What is that exception?

A. When we purchased—prior to our purchasing the assets of the Crown Cap Company, I assume somebody

went through there and saw what they had; I personally did not.

Q. 189. And that was about the time that you discovered the Johnson machine there and notified Johnson of his infringement, is that correct?

A. I personally did not examine, but someone in the organization who went through it, did, yes.

Q. 190. There has been some answer to interrogatories filed by the defendant here, and among the answers filed by the plaintiff are a list of licensees. What royalties did you receive from patents in suit during the last calendar year from these licensees?

A. During 1934?

Q. 191. Yes.

A. Approximately \$47,000.

[fol. 686] Q. 192. Referring to Defendant's Exhibit XXXX and the advertising entitled "Spot Crowns," do you know who prepared that advertisement?

A. I prepared the script here, but I had nothing to do with the other part of it.

Q. 193. Before you published that advertisement in July of 1933, did you send similar notices to your competitors regarding these patents and offering to license them?

A. Yes, I think it was March of 1933 that we sent out a letter to all known as crown manufacturers.

Q. 194. And did you send an offer of license at that time to the defendant in this case?

A. Yes, a copy of that was sent to the defendant.

Q. 195. Have you a copy of the letter which you sent, here?

A. I have, yes sir; it is dated March 21, 1933.

Mr. Darby: I offer in evidence carbon copy used by the witness as Plaintiff's Exhibit.

(Marked Plaintiff's Exhibit 84 in evidence.)

Q. 196. Did you write this letter and forward it on or about the date mentioned, March 21, 1933?

A. Yes.

Q. 197. There has been some testimony regarding equipment ordered from the John Waldron Company by contract in August of 1933 for the coating of foil with nitrocellulose and resin adhesive. Have you examined your records to ascertain when that equipment was delivered and installed by the John Waldron Company?

A. It was delivered at the close of 1933 and the installation [fol. 687] was completed and operation started about April of 1934.

Q. 198. Have you at my request examined your records to obtain these invoices which I hand you regarding typical purchases of 4620 thermoplastic cement from the duPont Company?

A. I have.

Q. 199. Those records show the following shipments, "Two gallons, January 31, 1933; five gallons, May 15, 1933; eight gallons, December 27, 1933; five gallons, August 1, 1933; fifty gallons, March 23, 1934," and lots of 100, 200 and 500 continuing then on from 1934, is that correct?

A. That is correct.

Mr. Darby: I desire to have the record show that defendant's counsel is examining the invoices just read to the witness.

Cross examination.

By Mr. Warland:

X Q. 201. This bill of August 12, 1932, from the duPont Company, calls for two quarts of thermoplastic cement, at a cost of 99 cents. Is that the first time that you bought this 4620 from the duPont Company?

A. I think our records show this is the first purchase. This was at \$1.75 per gallon, 99 cents for the two quarts, including 11 cents postage.

Redirect examination.

By Mr. Darby:

R. D. Q. 203. Mr. Warland has asked you with reference to one invoice that I neglected to read, namely, the one of August, 1932—

A. August, 1932.

R. D. Q. 204. For two quarts?

A. Yes.

[fol. 688] Recross-examination.

By Mr. Warland:

R. X Q. 205. You are familiar with the publication known as the Beverage Journal, are you not?

A. I know there is such a publication.

R. X Q. 206. I show you an issue of that paper dated June, 1930, page 5, containing an advertisement purporting to be made by the Armstrong Cork Company and referring to paper spot composition corks. Do you remember seeing that advertisement at that time?

A. No, I do not; I very seldom see these trade publications at all. I am not in the sales division, and rarely ever see the trade journals.

R. X Q. 207. You knew that various manufacturers were advertising composition corks with glazed paper center spots on that date and long prior to that date, didn't you?

A. I knew that; I did not know what any of our competitors were doing in the way of advertising. I had seen the product of certain competitors, I could not say specifically now, in the nature of paper spot crowns somewhere around 1930 or 1931, that I know of.

Mr. Warland: I offer page 5 of that publication in evidence.

(Marked Defendant's Exhibit HHHHH in evidence.)

Redirect examination.

By Mr. Darby:

R. D. Q. 208. Attention has been called to this advertisement in this publication, Exhibit HHHHH. As far as you [fol. 689] know, did the plaintiff have any idea how competitors were making these crowns?

A. As far as I knew, we did not.

Mr. Scull: I offer in evidence a certified copy of certain papers from Interference No. 66,201, Warth vs. Johnson, as Plaintiff's Exhibit 85.

Mr. Warland: Just a moment. I object to the defendant being bound by any proceedings in that interference.

Mr. Scull: We have had a great deal of talk about it.

The Court: You have talked about it a lot. I do not know how far it binds you. I will take it and find out. There has been surely plenty of talk about it.

Mr. Warland: Yes, there are certain papers that I used as admissions against interest.

(Marked Plaintiff's Exhibit 85 in evidence.)

Mr. Scull: I offer in evidence a certified copy of certain papers from Interference No. 60,878, Warth vs. Lange.

Mr. Warland: The same objection to that.

The Court: I will take it; I can't tell until I read it.

(Marked Plaintiff's Exhibit 86 in evidence.)

Mr. Scull: I offer in evidence a certified copy of the File Wrapper and contents of Johnson patent 1,852,578.

(Marked Plaintiff's Exhibit 87 in evidence.)

[fol. 690] Mr. Scull: And I offer in evidence, subject to withdrawal in the event that it is found to be a duplicate of defendant's exhibit, certified copy of the File Wrapper and contents of patent No. 1,899,783.

(Marked Plaintiff's Exhibit 88 in evidence.)

Mr. Scull: The plaintiff rests.

BENNO COHN, recalled as a witness on behalf of the defendant, in sur-rebuttal, testified further as follows:

Direct examination.

By Mr. Warland:

Q. 526. There was testimony given here by a man by the name of Szavo formerly in your employ, and he said that he saw Mr. Rasmussen trying to make center spots out of paper and secure them with silicate of soda in the Summer of 1920. Was Mr. Rasmussen with the Gutmann in the Summer of 1920?

A. No, Mr. Rasmussen came with us in September, 1920.

Q. 527. After Labor Day?

A. That is right.

Q. 528. Can you fix that date by refreshing your recollection from the books?

A. Yes.

Q. 529. Now, Szavo said he left there in September, 1921; can you state after refreshing your recollection from your books what day he did leave Gutmann's?

A. Yes, our time book shows he left September 16, 1922.

Q. 530. Now, you testified on your direct examination as [fol. 691] to a very considerable use of 4620 adhesive.

A. Yes.

Q. 531. And there was only one invoice I think from the duPont Company. Did you buy your adhesive direct from the duPont Company or did you buy it from a dealer who dealt in duPont Company materials?

A. We bought it indirectly.

Q. 532. From a dealer?

A. Yes, sir.

Q. 533. Have you got the invoices for those?

A. They are here.

Q. 534. Let me have them please.

A. Shall I get them.

Q. 535. Are they in this folder I hand you?

A. Yes, those are same of the invoices, many of them.

Q. 536. About how many would say there were?

The Court: Tell us between what dates you bought them and how much? Give us the beginning date and the last date, and the total that you bought, that is all we need. You need not tell us from whom they were obtained.

The Witness: There were small quantities the invoices for which are not here, five gallons or less, early in 1933. The first invoice I have here is 25 gallons on August 28, 1933—

The Court: You tell me what you have there, what was the first and what was the last and what is the total, let your assistant figure it up if you want to, it is a matter of computation.

[fol. 692] The Witness: The first date here is August 28, 1933.

The Court: And the last date?

The Witness: The last date here is December 3, 1934, and I can add it up pretty quickly.

Mr. Scull: I do not care whether it was a hundred gallons or a thousand gallons.

Q. 536. There was a sample of surgical gutta percha tissue produced this morning by Mr. Reed, is that the kind of gutta percha you used on these caps you sold to the Inecto?

A. Well, I take Mr. Reed's word for it, it looked the same, it was about that.

Q. 537. When the question of putting gutta percha on these caps for Inecto came up, did you discuss with anybody or did anybody in your plant discuss with Mr. Evans as to what quality of gutta percha was to go on, whether it was to be the surgical or the other kind?

A. Yes, we made samples of both, if I remember correctly we got two kinds of samples from Bishop which we made up samples from for Inecto, and they chose the surgical.

Q. 538. Now, testimony was given this morning by Mr. Weisenburg that he couldn't successfully adhere the spot to a cork with this surgical gutta percha on tin-foil. Just what would you say was the trouble with his experiments?

A. Well, I would like to examine his experiment before saying definitely, but my offhand opinion would be that he did not apply enough heat or he did not apply heat properly. However that may be, we did it.

[fol. 693] Cross-examination.

By Mr. Scull:

X Q. 539. Do you remember when you were on the stand before, Mr. Cohn, I asked you to give us the sales prior to 1928?

A. Yes.

X Q. 540. Have you got them?

A. Yes, they are as follows:

	Without Center Spots	With Center Spots	Total
1924.....	649,649 gross	729 gross	650,378 gross
1925.....	798,149 "	12,396 "	810,545 "
1926.....	1,000,897 "	11,089 "	1,011,986 "
1927.....	851,796 "	12,608 "	864,404 "

Redirect examination.

By Mr. Warland:

R. D. Q. 541. Mr. Scull asked you to produce all the correspondence you had with Inecto and you said you had all that was pertinent and then Mr. Scull asked you for all the correspondence with Inecto around that date, as well as bills and so forth. Did you give him those documents?

A. Yes, the following morning I went to the plant and I brought with me and gave to Mr. Scull or Mr. Darby all the correspondence we had about that date with Inecto, the Bishop Gutta Percha Company and the Beechnut Foil Company.

R. D. Q. 542. The total amount of your purchases of 4620 is as follows?

A. The total amount is 1105 gallons, consisting of 205 gallons in 1933 and 900 gallons in 1934.

Mr. Warland: Now, if your Honor pleases, I should like to renew the defendant's invitation to have you look at its plant.

[fol. 694] Mr. Scull: Yes, we will be glad to make any arrangements like that.

The Court: Well, I have considered it and I will be there at three o'clock this afternoon. Now, this is just for me to look at the plant and at the machine; you will not take any evidence, there will be no need for any stenographer, will there?

Mr. Scull: No, your Honor.

Mr. Warland: We will not need any stenographer, sir.

The Court: Very well. Now, the case is closed and I will ask you gentlemen to submit briefs on December 20th, all papers by December 20th.

IN UNITED STATES DISTRICT COURT

STIPULATION AND ORDER APPROVING STATEMENT OF THE EVIDENCE

The foregoing statement of the testimony, taken at the trial, having been presented to me, the same is hereby approved and allowed, and is ordered filed as a statement of the evidence to be included in the record on appeal, as provided by Equity Rule 75.

Dated, May 16th, 1936.

Marcus B. Campbell, U. S. District Judge.

Consented to. Gifford, Scull & Burgess, Solicitors for Plaintiff. Hauff & Warland, Solicitors for Defendant.

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[fols. 695-728] PLAINTIFF'S EXHIBIT No. 1

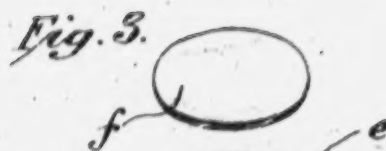
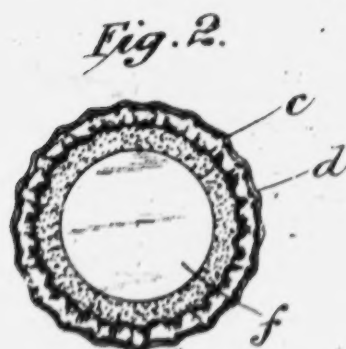
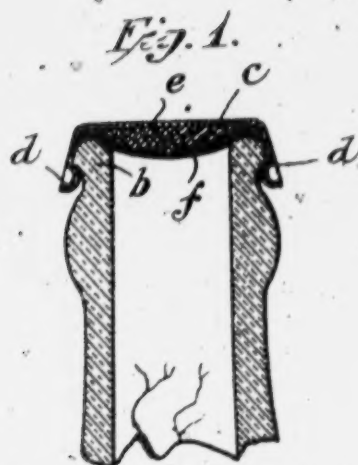
530

C. E. McMANUS.
BOTTLE CLOSURE.

APPLICATION FILED NOV. 17, 1915.

1,339,066.

Patented May 4, 1920.



Attest:

Edmitohu

Charles E. McManus Inventor:
by *Frank P. Wentworth*
his Atty.

UNITED STATES PATENT OFFICE.

CHARLES E. McMANUS, OF NEW YORK, N. Y.

BOTTLE-CLOSURE.

1,339,066.

Specification of Letters Patent.

Patented May 4, 1920.

Application filed November 17, 1915. Serial No. 61,909.

To all whom it may concern:

Be it known that I, CHARLES E. McMANUS, a citizen of the United States, residing at the borough of Manhattan, in the city, county, and State of New York, have invented certain new and useful Improvements in Bottle-Closures, of which the following is a specification, reference being had therein to the accompanying drawings, which form a part thereof.

My invention relates to bottle closures and more particularly to a type of metal caps containing therein a compressible disk adapted to engage and seat upon the lip of a bottle to seal the bottle.

In closures of this character the compressible disk is ordinarily formed of sheet cork or of a composition composed of granular cork, the particles of which are united by an insoluble, gas and acid proof, binder.

The type of closure referred to above, while extensively used by bottlers, has certain objectionable characteristics, the correction of which is the object of my invention.

In producing closures of this character for commercial use, it is practically impossible to secure disks, whether of cork or of a composition, all of which will have a perfectly smooth, continuous surface and have the same degree of compressibility.

The inequality of different disks is not apparent from inspection and can be determined only after the cap has been placed upon a bottle. If there be surface flaws upon the disk and if the compressibility of the disk be insufficient to permit the complete closing of these flaws, the gases within the bottle will, after the cap is placed upon a bottle, find a passage to atmosphere by reason of the defective sealing of the neck of the bottle, and thus cause the contents of the bottle to "go flat." Bottles thus imperfectly sealed are known in the bottling trade as "leakers" and the percentage of such "leakers" is sufficiently high to cause this defect to be a source of considerable loss. When bottling beer "leakers" will ordinarily develop during the sterilization of the bottled beer but it is not uncommon to have "leakers" develop even when the seal seems to be perfectly tight after a test by the bottlers.

In addition to the development of "leak-

ers" by reason of defects in the disk, contact of the contents of the bottle with the cork or other material of a disk will have the effect of imparting an undesirable flavor or taint to said contents, a condition which is particularly true of some composition disks. Furthermore, there is a likelihood of small particles of cork being separated from the disk and falling within the bottle, which is more likely to occur with composition disks than with solid cork disks, although the latter are not free from this objectionable condition.

By my invention I provide a bottle closure having all of the desirable characteristics, so far as securing a tight joint is concerned, present in the ordinary closure having a cork or composition disk, and in addition thereto having the characteristics of protecting the contents of the bottle from contamination by contact with the disk and preventing the escape of particles of cork from the disk, into the bottle. Furthermore, the surface of the cushion of the disk exposed within the neck of the bottle is so formed as to present a smooth continuous surface and thus minimize likelihood of "leakers" while preserving all of the compressibility or elasticity inherent to the cork or composition disk.

The invention consists primarily in a bottle closure embodying therein a metallic cap, a compressible disk within said cap, and a flexible disk of non-absorbent material superimposed upon, and united by means of a binding agent with, said compressible disk, said superimposed disk being of smaller diameter than said compressible disk whereby a sufficient portion of the surface of said compressible disk is exposed to permit the sealing of the bottle directly against said compressible disk and the portion of the compressible disk within the neck of the bottle is protected by said flexible disk; and in such other novel features of construction and combination of parts as are hereinafter set forth and described and more particularly pointed out in the claims hereunto appended.

Referring to the drawings:

Figure 1 is a sectional view of a portion of the neck of a bottle showing my improved closure thereon, said closure being shown in section;

Fig. 2 is a bottom view of the closure;
Fig. 3 is a perspective view of the flexible disk; and

Fig. 4 is a perspective view of the compressible disk.

Like letters refer to like parts throughout the several views.

In the accompanying drawings, the neck of the bottle is indicated at *a*, the configuration of the lip *b* of the bottle and the portion of the neck adjacent thereto being that ordinarily employed with bottle closures of the type to which this invention relates.

In the form of closure shown in the accompanying drawings, there is presented an embodiment of my invention which I preferably employ although it is not my intention to limit the invention to this particular form.

In this embodiment of the invention, I have shown at *c* an ordinary metallic cap having a convoluted rim *d* adapted to pass over and be clamped under the lip of the bottle. Seated within and united to the cap *c* is a disk *e* of compressible material. This disk extends to a point adjacent the flange *d*. The manner of securing said disk in its position relatively to the cap, may be that ordinarily employed in closures of this type, the union of the disk to the cap ordinarily including the use of a fusible binding medium interposed between the cap and the disk, and set in a manner to unite the parts by the application of heat and pressure simultaneously or successively.

The disk *e*, as shown in the accompanying drawings is what is known in the art as a "composition disk", being composed of granular cork formed into a sheet of the desired thickness by means of a binder having the same qualities of insolubility as the medium used in securing the disk in the cap.

A composition disk combined with a metallic cap, as heretofore described, is old and well-known in this art and I make no claim of invention thereto. The medium used as a binder for the granular cork, and in attaching the disk to the cap, are also old and well-known to those skilled in the art, and this old and well-known medium, or any other desired medium, fusible only at a temperature above that at which bottled beverages are sterilized, may be used.

My invention relates more particularly to a construction of closure wherein that portion thereof exposed to the liquids within the bottle is so protected as to prevent contamination of the liquid by contact with the disk, and the dropping of small particles of cork or other material of which the disk is composed, into the liquid. This construction also assists in securing a gas tight joint by the closure of any surface flaws or defects in the disk.

My invention contemplates the utilization in conjunction with the metallic cap *c* and compressible disk *e*, of a flexible disk *f*, superimposed upon the disk *e* and completely covering that surface area of the disk *e* which is exposed within the neck of a bottle when the closure is applied thereto.

This disk *f* may be made of a hard parchment paper, or of any other paper so treated as to make it non-absorbent. This flexible disk *f* is secured in place upon the compressible disk *e* by means of a binding medium, preferably such as that which is used as a bond for the granules of the composition disk or for uniting said disk to the metallic cap. By using this bond, the disk *e* and the disk *f* may be assembled in relation to the cap and to each other by one and the same operation if desired.

The purpose of the disk *f* is not to assist in forming the seal between the closures and the bottle lip but to prevent the presence of channels through which gas may escape and to prevent contact of the liquid with the compressible disk. To secure the desired action of the superimposed flexible disk *f*, I make it of a smaller diameter than the disk *e* and position the center of the disk *f* directly over the center of the disk *e*, thus exposing a sufficient portion of the surface of the disk *e* to permit the sealing of the neck of the bottle directly against the material of said disk. The width of this exposed portion is such as to bring the edge of the disk *f* up to the line of contact of the disk *e* with the lip of the bottle, thus insuring protection of the entire surface of the disk *e* within the neck of the bottle. Exactitude in the positioning of the disk *f* with relation to the disk *e* is of great importance as the projection of any portion of the disk within the area of the contact surface of the disk *e* would result in "leakers" and thus make the closure worthless. Accuracy in the positioning of the disk *f*, in the commercial production of caps of the character herein described, may be secured mechanically in a number of different ways and by means of a variety of different mechanisms and the manner of assembling the device, or the mechanism employed in so assembling it, is immaterial to the invention of this application.

It will be apparent that superimposing the disk *f* in the manner described upon the disk *e*, will have the effect of sealing all surface imperfections in the disk *e* about the center thereof and to a point co-incident with the point of engagement of said disk with the neck of the bottle. When the closure is in position upon a bottle, the disk *f* being non-absorbent, impervious to gas, insoluble and acid proof, will prevent contact of the liquid in the bottle with the material of the disk *e*. The thinness and flexibility

of the disk *f* will permit it to readily adapt itself to any changes of form in the disk *e* resulting from the compression thereof at the edge without likelihood of the formation of channels through which the gases within the bottle may escape.

My invention is particularly adapted to closures employing compressible disks embodying therein granular cork, as in this form of closure, there is greater likelihood of slight contamination of the liquid contents of a bottle and there is also greater likelihood of the separation of small granules of cork from the main body and the presence of such small granules in the liquid in the bottle. Furthermore, with a composition disk, the binding medium employed for attaching the disk *f* to the disk *e* will readily combine with the binding material for the disk itself and thus form a close intimate bond between the two disks.

The use of the disk *f* will also tend to prolong the effective life of the disk *e* by preventing the gases and liquid in a bottle contacting with any filling or surfacing medium which may be used upon the disk *e*.

I have referred herein to the fact that the disk *f* does not extend into the area of the contact surface of the disk *e*. By this I do not mean that the disk *f* must not contact with the neck of the bottle, but that it must be within that portion of the disk *e* which is subjected to the compression necessary to secure a tight sealing of the bottle. In applying a closure of this type to a bottle, a channel is formed in the disk *e* by the top of the bottle lip, the line of greatest compression being centrally of said channel. The disk *f* is so positioned as to be spaced within said line of greatest compression and yet it may be, and preferably is, in contact with the inner edge of the bottle lip; and thus forms a double seal, one between the disk *e* and the top of the lip of the bottle, and the other between the disk *f* and the inner edge of said lip.

It is not my intention to limit the invention to the precise details of construction shown in the accompanying drawings, it being apparent that such may be varied without departing from the spirit and scope of the invention.

Having described the invention, what I claim as new and desire to have protected by Letters Patent is:—

1. A bottle closure embodying therein a metallic cap, a compressible disk within said cap, and a flexible disk of non-absorbent material superimposed upon, and united by means of a binding medium with, said compressible disk, said superimposed disk being of smaller diameter than said compressible disk, whereby a sufficient portion of the surface of said compressible disk is exposed to permit the sealing of the bottle

directly against said compressible disk and the portion of the compressible disk within the neck of the bottle is protected by said flexible disk.

2. A bottle closure embodying therein a metallic cap, a compressible disk within said cap, and a thin non-absorbent, non-porous paper disk superimposed upon, and united by means of a binding medium to, said compressible disk, said paper disk being of smaller diameter than said compressible disk, whereby a sufficient portion of the surface of said compressible disk is exposed to permit the sealing of the bottle directly against said compressible disk, and the portion of the compressible disk within the neck of the bottle is protected by said flexible disk.

3. A bottle closure embodying therein a metallic cap, a compressible disk within said cap, and a flexible disk of non-absorbent material superimposed upon, and united by means of a fusible binding medium with, said compressible disk, said superimposed disk being of smaller diameter than said compressible disk, whereby a sufficient portion of the surface of said compressible disk is exposed, to permit the sealing of the bottle directly against said compressible disk and the portion of the compressible disk within the neck of the bottle is protected by said flexible disk.

4. A bottle closure embodying therein a metallic cap, a compressible disk composed of granular cork and a binding medium within said cap, and a flexible disk of non-absorbent material superimposed upon, and united by means of a binding medium with, said compressible disk, said superimposed disk being of smaller diameter than said compressible disk, whereby a sufficient portion of the surface of said compressible disk is exposed, to permit the sealing of the bottle directly against said compressible disk and the portion of the compressible disk within the neck of the bottle is protected by said flexible disk.

5. A bottle closure embodying therein a metallic cap, a compressible disk composed of granular cork and a fusible binding medium within said cap, and a flexible disk of non-absorbent material superimposed upon, and united by means of a fusible binding medium with, said compressible disk, said superimposed disk being of smaller diameter than said compressible disk, whereby a sufficient portion of the surface of said compressible disk is exposed, to permit the sealing of the bottle directly against said compressible disk and the portion of the compressible disk within the neck of the bottle is protected by said flexible disk.

6. A bottle closure embodying therein a metallic cap, a compressible disk within said cap, and a flexible disk of non-absorbent material superimposed upon, and united

by means of a binding medium with, said compressible disk, said superimposed disk being of smaller diameter than, and having its center coincident with the center of, said compressible disk, whereby a sufficient portion of the surface of said compressible disk is exposed, to permit the sealing of the bottle directly against said compressible disk and the portion of the compressible disk within the neck of the bottle is protected by said flexible disk.

7. A bottle closure embodying therein a metallic cap, a compressible disk composed of granular cork, and a fusible binding medium within said cap, and a thin non-absorbent, non-porous paper disk superimposed upon, and united by means of a fusible binding medium to, said compressible disk, said paper disk being of smaller diameter than said compressible disk, whereby a sufficient portion of the surface of said compressible disk is exposed to permit the sealing of the bottle directly against said compressible disk, and the portion of the compressible disk within the neck of the bottle is protected by said flexible disk.

8. A bottle closure embodying therein a metallic cap, a compressible disk secured within said cap by means of a fusible binding medium, and a flexible disk of non-absorbent material superimposed upon, and united by means of a fusible binding medium with,

said compressible disk, said superimposed disk being of smaller diameter than said compressible disk, whereby a sufficient portion of the surface of said compressible disk is exposed, to permit the sealing of the bottle directly against said compressible disk and the portion of the compressible disk within the neck of the bottle is protected by said flexible disk.

9. A bottle closure embodying therein a metallic cap, a compressible disk composed of granular cork, and a fusible binding medium secured within said cap by means of a fusible binding medium, and a thin non-absorbent, non-porous paper disk superimposed upon, and united by means of a fusible binding medium to, said compressible disk, said paper disk being of smaller diameter than said compressible disk, whereby a sufficient portion of the surface of said compressible disk is exposed to permit the sealing of the bottle directly against said compressible disk, and the portion of the compressible disk within the neck of the bottle is protected by said flexible disk.

In witness whereof I hereunto affix my signature in the presence of two subscribing witnesses, this 15th day of November, 1915.

CHARLES E. McMANUS.

Witnesses:

CLARICE FRANCK,
JUDITH PARDEE.

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PAGE

535 Feb. 28, 1933.

A. H. WARTH

1,899,782

MATERIAL FOR FACING BOTTLE CAPS AND METHOD OF MAKING SAME

Filed Dec. 17, 1929

Fig. 1.

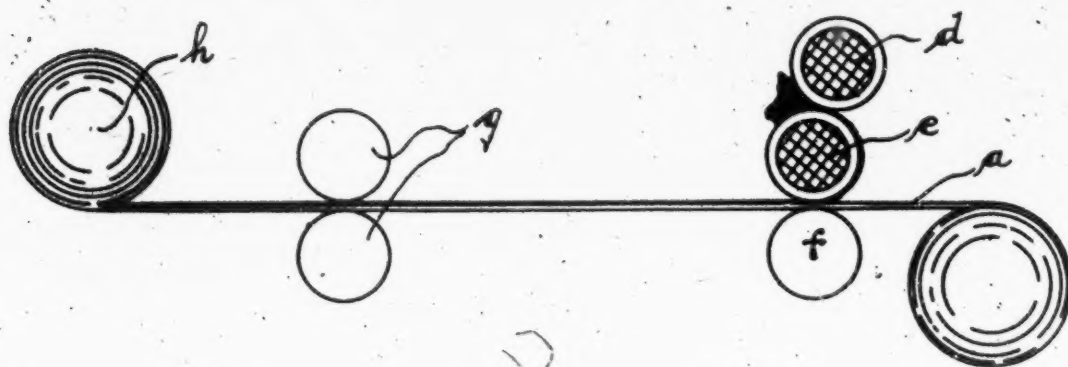


Fig. 2.

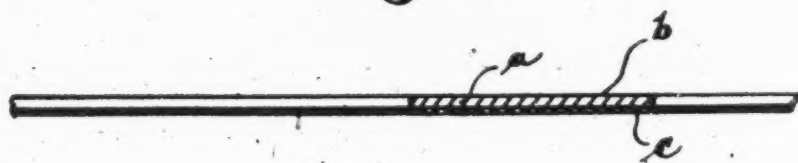


Fig. 3.

Albin H. Warth

INVENTOR

BY *Paul J. Neutrosh*

his ATTORNEY

Patented Feb. 28, 1933

536

1,899,782

UNITED STATES PATENT OFFICE

ALBIN H. WARTH, OF BALTIMORE, MARYLAND, ASSIGNOR TO CROWN CORK & SEAL COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

MATERIAL FOR FACING BOTTLE CAPS AND METHOD OF MAKING SAME

Application filed December 17, 1929. Serial No. 414,614.

My invention relates to material for facing bottle caps and method of making same, and more particularly to strip material having applied to one face thereof a coating of gutta-percha.

This application is a continuation-in-part of my copending application Serial No. 494,201, filed November 7, 1930, the latter being a division of my application Serial No. 159,743, filed January 7, 1927, and now Patent No. 1,788,260, granted January 6, 1931.

Heretofore, facing material for bottle caps has been secured in position within the caps by means of gutta-percha tissue. In forming the facing disks and applying them to the caps, the practice has been to cut disks from superimposed strips of facing material and gutta-percha tissue, deposit the disks in the cap and apply heat for the purpose of fusing the gutta-percha tissue. Such a method is illustrated and described in my copending application Serial No. 492,546, filed October 31, 1930, as a division of my copending application Serial No. 380,895, filed May 5, 1929. As will be understood, this method of procedure is utilized in the production of caps of the "center spot" type, i. e. which are provided with a facing or "center spot" of less diameter than the cap or cushion disc within the cap. It is to the production of material for the manufacture of caps of this "center spot", that the present invention more particularly relates, although in its broader aspects it is useful in the manufacture of caps having facings other than "center spots". A further illustration of a cap of the "center spot" type is to be found in the patent to McManus 1,339,086, granted May 4, 1920. One difficulty in thus applying such "center spots" or disks to caps has arisen from the use of superimposed unconnected strips of facing material and of gutta-percha, the two strips being simultaneously fed from the same roll in relation to the punch of the face applying machine. As will be understood, facings of the "center spot" type are applied within the formed cap to the cushion liner and this method of manufacture presents problems quite distinct from the manufacture of caps having facings coextensive with the cushion liner, since facings coextensive

with the cushion liner are ordinarily produced by adhesively uniting superimposed facing material and cushion liner material, both in sheet form, thereafter simply punching laminated discs of facing material and cushion material from the laminated sheet.

With this condition, there is not only difficulty in feeding the strip, but in cutting the gutta-percha with a clean sharp edge so as to ensure the binding stratum of gutta-percha being co-extensive in area with the facing disk. The gutta-percha binding stratum in such disks is intended not only to act as a cement, but also as a non-absorbent, gas impervious medium for avoiding possibility of the contents of a bottle getting between the facing disk and the material of the cap, either the metal shell itself or a cushion disk of cork or composition cork.

Furthermore, when thus using superimposed strips of the facing material and of gutta-percha tissue, it was essential, during the application of the disk to the cap, to bond the gutta-percha to both the material of the cap and the facing material.

It is desirable, in the use of facing disks of the character above referred to, that the gutta-percha stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disk, and particularly that it be uninterrupted about the edge of this disk, since at this point the disk should be firmly bonded so as to effectively seal the joint about the edge of the facing disk. When cutting and applying the disks of paper and gutta-percha, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of gutta-percha, thus avoiding all necessity for assembling strips of facing material and of gutta-percha-tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

In the strip material of my invention, a very thin stratum of gutta-percha is evenly distributed upon one face of a strip of facing material. The gutta-percha is not only
 5 firmly bonded to this material, but is forced into the surface grain thereof, and has a smooth surface finish of sufficient thickness to form the desired firm bond between a disk cut from the strip and the material of the
 10 cap to which such disk is cemented.

The manner of applying the gutta-percha to the facing strip is such as to ensure substantial uniformity in the condition of the gutta-percha throughout the strip by reason
 15 of the fact that those impurities or imperfections resulting from the working of gutta-percha in a mill will develop only along the edges of the facing material, where they may either be removed by trimming wide strips
 20 of the material, or will come within the wastage of narrow strips when cutting disks from such strips.

Furthermore, gutta-percha tissue must be of a thickness to have sufficient inherent
 25 strength to permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the re-winding and the disk applying, machines, and during the
 30 process of its production it has more or less of a longitudinally extending grain as distinguished from its normal granular formation.

In applying the gutta-percha to the fibrous or metallic facing material in accordance
 35 with my invention, the thickness of the gutta-percha is determined solely by that required to secure the desired intermediate stratum of the gutta-percha in the finished cap.

In the application of heat, when bonding the facing material to the cap, when utilizing
 40 gutta-percha tissue, a tendency of the gutta-percha is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether
 45 this is due to irregularities in the surface of the facing strip, or to a shrinkage of the gutta-percha tissue when fused, I have been unable to determine. In the strip of my invention,
 50 however, the gutta-percha is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the
 55 strips.

So far as the method of producing the strip is concerned, it is such that the effective
 60 distribution of the gutta-percha throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of disks from this material when in strip form. Furthermore, the gutta-percha surface may be
 65 thoroughly inspected while producing the strip material, so that any imperfect prod-

uct may be discarded before it reaches the disk applying machine.

It is desired to note that the surface of the strip to which the gutta-percha is not applied is always a highly polished surface, whether it be a varnish fibrous material such as paper or a metal foil, so that the gutta-percha surface will not adhere thereto. By applying the gutta-percha directly to the surface of the paper and firmly bonding it there is a likelihood of difficulties arising as a result of the separation of the gutta-percha from the facing strip during the unwinding operation, either as a result of slight adherence, from suction or otherwise, such as frequently occurs when using the superimposed strips of the facing material and of gutta-percha tissue.

The invention consists primarily in material for facing bottle caps consisting of a facing strip of non-absorbent, gas impervious and acid resisting material, having bonded thereto; throughout one face thereof, a thin surfacing of gutta-percha; and in such other novel characteristics, and in the novel steps and practices of producing same, all as hereinafter set forth and described, and more particularly pointed out in the claims here appended.

Referring to the drawing,

Fig. 1 is a diagrammatic showing of the method of producing the facing material of the invention;

Fig. 2 is a longitudinal view, partly in cross section, of a fragmentary portion of said material; and

Fig. 3 is a face view thereof with a portion of the facing strip broken away.

Like letters refer to like parts throughout the several views.

In the accompanying drawing, the thickness dimensions are all greatly exaggerated, the thickness of the facing strip being less than five thousandths of an inch, and that of the gutta-percha surfacing, less than two thousandths of an inch.

In the embodiment of the invention shown in the drawing, the facing strip is composed of what is known as express paper which is a hard, tough paper having little absorptive properties. The properties inherent to the paper, however, are such, if properly finished, as to adapt it for use as facing material for bottle caps, although it is extremely difficult to satisfactorily cement such paper to the metal shell or cork cushion of such closure.

In order to impart to one surface of the paper only the desired properties which will result in this strip presenting toward the contents of a bottle, a surface which is non-absorbent, gas impervious and acid resisting, I give a finish to this surface consisting of a coating of a varnish having the desired properties, and which includes therein resin

china-wood oil, a drier and a plasticizer. This surface finish, in addition to having the properties above described, will also be sufficiently flexible to avoid the formation of cracks, or impart to the paper strip as a whole, a degree of brittleness which might result in the formation of such cracks or seams in the paper as would destroy the surface finish and permit the contents of the bottle to attack the body of the paper.

While express paper is a water finish paper, other similar papers may be used such as sulfite paper or bleached kraft paper.

The varnish finish coating above referred to is indicated at *b* in the drawing, this coating being very thin, merely sufficient to provide a continuous surface upon one side of the strip. The other side of the paper strip presents the normal finish of the paper, and is firmly bonded thereto a thin coating *c* of gutta-percha, covering the entire face of the strip and presenting a smooth continuous surface, having a general granular character resulting from the manner of applying the same to the paper.

It is obvious that in the handling of the completed strip of facing material the gutta-percha facing *c* will be incapable of stretching or distortion because of its firm adherence to the non-elastic paper strip *a*. As compared with gutta-percha tissue, the quantity of gutta-percha required to secure the desired bonding action, when assembling the facing disk in a cap, is somewhat reduced.

In cutting disks from a strip of the material, there is no tendency toward mutilation of the gutta-percha by reason of possible lag in the cutting die, and each disk, as delivered from the die to within a cap, will present a continuous uninterrupted gutta-percha surface upon the disk, so as to ensure, by the subsequent application of heat and pressure, a bond between the disk and the cap co-extensive in area with the disk. The method involved in utilizing my invention need not be more fully described herein, since it is more fully disclosed and covered in my United States Patent 1,788,260, granted January 6, 1931.

Since, in applying the gutta-percha to the paper, the conditions are such as to completely fill surface pores, it is obvious that during the bonding action, in the facing machine, there is no tendency of the gutta-percha, after fusing, leaving exposed, any openings at any point of the surface of the paper.

By reason of the thinness of the gutta-percha facing *c*, there is no tendency toward compression of any of the gutta-percha between the facing disk and the portion of the cap to which it is applied.

The possibility of securing a clean cut by the die for forming the disks, both as to the paper and as to the gutta-percha facing *c*,

ensures an effective bond entirely about the edge of the disk, presenting a continuous barrier of non-absorptive, gas impervious and acid resisting material at the space between the disk and the cap which will effectively prevent the seepage of gas or fluids in a bottle between the disk and the portion of the cap to which it is applied. 70

In Fig. 1 of the drawing, I have illustrated the method of making the strip material of my invention. In the practice of this method, I use an ordinary mill with its heated rollers *d* and *e*. Operative in relation to the lower roller *e* is a backing roller *f*. A strip of the paper or other material *a* is drawn between the rollers *e* and *f* by means of the feed rollers *g*, by which it is passed to a re-wind mechanism indicated at *h*. 75 80

The method contemplates the feeding of the strip *a* between a backing roller *f*, and between one of the heated rolls of a gutta-percha mill *e*, thus applying a thin coating of gutta-percha while hot, to one surface only of the paper strip *a*, the gutta-percha hardening from its exposure to the surrounding temperature before engagement by the feed rollers *g*. 85 90

In feeding the strip *a* in the manner above described, the varnish surface thereof is presented downwardly, this surface having been applied to the paper prior to the feeding of the strip in the mill. In this manner a very thin coating of gutta-percha may be applied to one face of the strip *a*, to which it will firmly adhere while said strip is passing between the rollers *e* and *f*. 95 100

The thickness of the surface coating may be controlled by adjustment of the rollers *d* and *e*, and also by adjustment of the roller *f* in relation to the latter. In this manner, the strip *a* will have applied thereto a surfacing of gutta-percha which will be evenly distributed throughout the entire surface of the strip, and will present a substantially smooth exterior surface, notwithstanding surface irregularities in the paper itself. The smooth polished surface *c* will avoid any possibility of a surface stratum *c* adhering to the adjoining stratum *b* after the strip is re-wound and while it is being unwound in the disk applying machine, since the gutta-percha will not become tacky under normal factory temperatures. 105 110 115

It is preferable to apply the gutta-percha in the manner above described, to wide strips of paper which are cut into narrower strips of the desired width for use with bottle caps of different diameters. 120

The method described has been found to be applicable to the coating of paper strips with gutta-percha, and it is also applicable to coat metal foil, but in coating foil it is desirable to previously prepare, as by the application of a coating, one surface of the foil to receive the gutta-percha and permit it to adhere 125 130

thereto with sufficient strength to permit a continuing application of gutta-percha to a strip as required by the method of my invention.

5 Facing material embodying the invention possesses the advantages that a substantially uniform and complete distribution of the gutta-percha throughout each disk cut from a strip, is assured. The additional labor of
10 associating a strip of gutta-percha tissue and a strip of facing material is avoided, and higher speeds may be attained in the facing disk applying machine. By the method of
15 applying fused gutta-percha to a facing strip, there is considerable saving, not only by the reduction in the amount of gutta-percha required, as compared with the use of gutta-percha tissue, but the preparation of the strips for use in the disk applying machines is very much reduced, and a more uniform quality in the bond between the disks and the caps is also assured.

It is preferable for the bottling of many liquids to employ facing material composed
25 of paper of the general character herein described, as compared with the use of metal foils.

Having described the invention, what I claim as new and desire to have protected by
30 Letters Patent, is:—

1. As a new article of manufacture, material for facing bottle caps consisting of a paper strip, having applied to one surface thereof a surface coating of varnish consisting of resin, China-wood oil, a drier and a
35 plasticizer, whereby said surface of the paper is made non-absorbent, gas impervious and acid resisting, and having bonded thereto, throughout the other surface thereof, a thin
40 surfacing of gutta-percha.

2. As a new article of manufacture, bottle cap liner material in strip form comprising paper having a high gloss and having a
45 coating of varnish on one surface of the paper and bonded to the other surface thereof a coating of gutta percha.

3. As a new article of manufacture, paper having a high gloss and having a coating of varnish on one surface of the paper and a
50 coating of gutta percha on the other surface thereof.

4. As a new article of manufacture, bottle cap spotting material in strip form comprising express paper having a coating of varnish on one surface and bonded to the other
55 surface thereof a coating of gutta percha.

5. As a new article of manufacture, bottle cap spotting material in strip form comprising bleached kraft paper having a coating of varnish on one surface and bonded to the
60 other surface thereof a coating of gutta percha.

6. As a new article of manufacture, laminated bottle cap spotting material in strip
65 form comprising hard, tough paper having

relatively low absorptive properties, a coating of resistant varnish on one surface of the paper and bonded to the other surface a coating of heat fusible, waterproof and flexible adhesive.

7. As a new article of manufacture, laminated bottle cap spotting material in strip form comprising hard, tough paper having relatively low absorptive properties, a coating of resistant varnish on one surface of the paper and bonded to the other surface a coating of gutta percha.

8. As a new article of manufacture, highly flexible material in sheet or strip form adapted for the spotting of cushion discs of crown caps with center spots of less diameter than the disc diameter by the mere application of heat and pressure consisting of a continuous layer of material selected from a group consisting of metallic foil and varnish coated tough paper having relatively low absorptive properties, said layer being coated on one side with an exposed continuous layer of waterproof, flexible, and acid resistant adhesive adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially nontacky at room temperature but fusible upon the application of heat and substantially impervious to moisture whereby spots may be punched from the strip and united to the cushion discs of caps by the mere application of heat and pressure.

9. As a new article of manufacture, highly flexible material in sheet or strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with an exposed continuous layer of waterproof, flexible, and acid resistant adhesive adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the application of heat and substantially impervious to moisture whereby spots may be punched from the strip and united to the cushion discs of caps by the mere application of heat and pressure.

In witness whereof I have hereunto set my signature, this 11th day of December, 1929.

ALBIN H. WARTER

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PAGE

Feb. 28, 1933.

A. H. WARTH

1,899,783

BOTTLE CAP AND METHOD OF MANUFACTURING SAME

Original Filed May 5, 1929

Fig. 1.

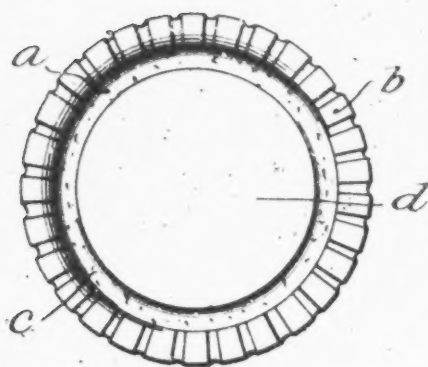


Fig. 2.

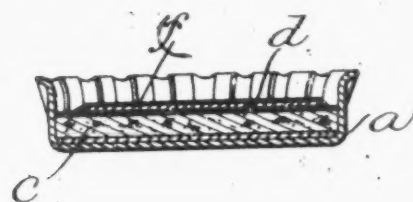


Fig. 3.

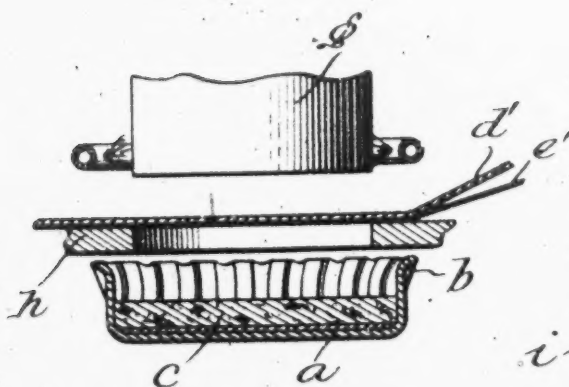


Fig. 4.

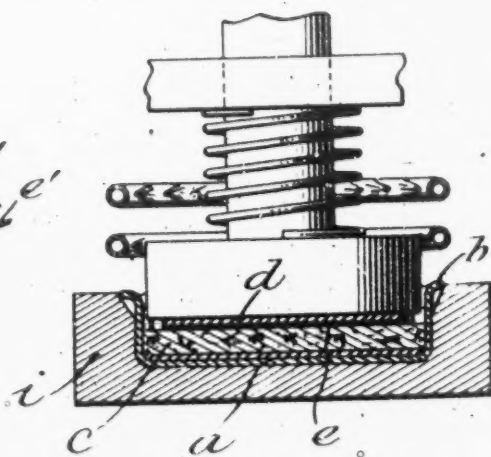
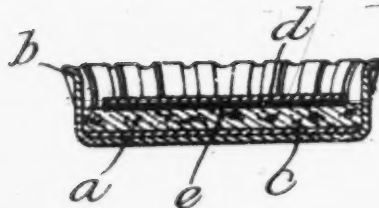


Fig. 5.



Inventor

Albin H. Warth,

By *Cushman Bryant Darby*

Attorneys

UNITED STATES PATENT OFFICE

ALBIN H. WARTH, OF BALTIMORE, MARYLAND, ASSIGNOR TO CROWN CORK & SEAL COMPANY, INC., OF BALTIMORE, MARYLAND, A CORPORATION OF NEW YORK

BOTTLE CAP AND METHOD OF MANUFACTURING SAME

Original application filed May 5, 1929, Serial No. 360,895. Divided and this application filed October 31, 1930. Serial No. 492,546.

My invention relates to bottle caps and the method of making same, and more particularly to a cap consisting of a metallic shell containing a cushion disk having what is known as a protecting center disk, and to the method of applying this center disk.

Bottle caps of the type to which my invention relates have heretofore been extensively used for sealing bottles containing mineral waters and other fluids having a deleterious action upon the cushion disk within the cap, particularly when this disk is made of composition cork. Ordinarily the facing center disk has been made of tin foil cemented or otherwise attached directly to the cushion disk, or secured thereto by means of a fibrous backing having applied thereto a dry adhesive made tacky by means of a thin film of moisture applied to the cushion disk.

It has been attempted to secure the facing disk upon the cushion disk by means of a liquid cement, but this has proven impracticable because, in order to secure a satisfactory bond, it was necessary to apply the adhesive in quantity having such thickness that, upon the application of pressure to secure the desired intimate relation between the facing disk and the cushion disk, there was a tendency of the disk to slide into an eccentric position in relation to the disk. In order to permit the effective sealing of a bottle with a cap having a tin center or other protective facing, it is essential that the facing disk be accurately centered in relation to the cushion disk so as to avoid any possibility of the neck of the bottle sealing against the facing disk, since this would result in the presence of minute channels or voids at the point of contact of the facing disk with the neck of the bottle. Furthermore, at the points where the line of contact crossed the periphery of the disk, there would be exposure of a small area of the cushion disk to the contents of the bottle.

With the above conditions in mind, the object of my present invention is to provide a bottle cap having a protecting center disk secured in position by a fusible medium devoid of moisture, and thus avoid any possibility of slippage of the disk while pressing it

into the necessary intimate relation with the cushion disk.

The medium used for securing the facing disk in place is of itself water insoluble and acid resisting and, being fusible at low temperatures, will form a very thin coating between the facing disk and the cork so as to preclude the possibility, in the event of imperfections in the facing disk, of the cork being attacked by the fluid contents of a bottle. A medium which is itself elastic or resilient, such as gutta percha, is preferred, since the same will provide an elastic cushion for the fibrous disk and thereby minimize the danger of rupturing the latter.

The cementing medium may be readily handled, is not affected by ordinary changes of temperature or atmospheric conditions, may be readily cut to size simultaneously with the cutting of the facing disk so as to secure a bonding stratum co-extensive with the area of the facing disk, and may be quickly fused to secure the desired bonding action between the facing disk and the cushion disk.

In addition to the foregoing characteristics, I am enabled to effectively use a facing disk of fibrous material, since the nature of the bonding medium is such as to firmly adhere to hard finished papers as well as to natural cork or composition cork.

In the commercial production of such caps, it is essential that the facing disk, during production, be cut from a strip of material, and since the edges of the disk cannot be protected by the same material used for waterproofing the surface of the disk, I have found it desirable, after the application of the facing disk, to apply, to the entire surface of the cap exposed interiorly of the cap, a very thin protecting surfacing of water repellent material. This not only serves to prevent adherence of the cork to the neck of the bottle, and to exclude atmospheric air from the exposed portions of the cushion disk before the cap has been applied to a bottle so as to prevent darkening of the cork by oxidation, but will at the same time, protect the perimeter of the center facing disk to an extent to minimize likelihood of the absorption of moisture at the edge of the disk.

Bottle caps of the general type of which my invention relates must be produced at a very low cost, and the various materials entering into same and the method of assembling and finishing are matters of great desideratum.

The herein described method of making the bottle cap of my invention relates merely to the manner of applying the center facing disk and finishing the cap, it being understood that the assembling of the metal shell and the mounting of the cushion disk therein are entirely independent operations, preparatory to the practicing of the method of my present invention.

The invention consists primarily in a bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellent, gas impervious fibrous material, such as a relatively hard, high-gloss or water-finish paper provided with a coating of resistant varnish, said disk being of smaller diameter than, and concentric with, said cushion disk, and a thin stratum of a water insoluble, fusible, cementitious material, such as gutta percha co-extensive in area with said facing disk, between said facing disk and said cushion disk; and in such other novel characteristics as are hereinafter set forth and described, and to the method of making said caps, all as hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawing:

Figure 1 is a bottom plan view upon an enlarged scale of a bottle cap embodying the invention.

Figure 2 is a section on the line 2-2 of Fig. 1.

Figure 3 is a vertical section illustrating the first stage of applying the center disk to the cushion disk.

Figure 4 is a similar view illustrating the final stage; and

Figure 5 is a view illustrating a stage intermediate those illustrated in Figs. 1 and 2, used when it is desired to apply a wax finish to the cushion disk.

Like letters refer to like parts throughout the several views.

In the accompanying drawing, notwithstanding that the caps themselves are shown upon an enlarged scale, the dimensions of the facing disk and the intermediate bonding stratum are of greatly increased thickness as compared with the actual materials used, even when compared with the enlarged scale of the other parts of the cap.

A bottle cap embodying the invention consists of the usual metallic shell *a* having a fluted skirt *b*. Secured within this shell is a cushion disk *c*, which may be either of natural, or of composition, cork. Composition cork is more extensively used than natural cork, and the employment of a tin or other center

facing disk is particularly desirable with composition cork cushion disks, since the contents of a bottle will more readily attack the binder of the composition cork than it will natural cork.

It is essential, to secure a reliable seal, particularly with carbonated beverages, that the neck of the bottle seal directly against the cushion disk, and not against the center facing disk. This is generally understood, and I follow, in the bottle cap of my present invention, the old practice of using a center facing disk *d*, the diameter of which is relatively less than that of the cushion disk, so that when the cap is applied to a bottle, the lip of the bottle will be positioned between the facing disk and the skirt *b*, the contacting area being such as to bring the facing disk to a point at the inner edge of such contacting area.

While heretofore tin centers have been extensively used, it has been found impracticable to use paper disks for this purpose, because in order to make them impervious to gas, and non-absorbent, the finish of the paper had to be such as prevented the formation of a sufficiently good bond between the facing disk and the cushion disk to permit the practical commercial production of such caps.

To correct this condition, it has long been the practice to bond a metal foil, such as tin or aluminum, to a fibrous backing, to which latter the cement would firmly anchor. With this construction of the facing disk it was the practice to apply a dry adhesive to the fibrous backing strip and to make this adhesive tacky by the application of moisture to the cushion disk immediately prior to the coating of the facing strip and the application of the disk cut therefrom to the cushion disk.

While caps, having a facing disk of the character immediately above described, have been extensively used, their production cost, as compared with the required low cost of such caps, has been very high.

Aside from the expense of caps provided with foil spots, their use has been extremely limited, due to the fact that foil is not sufficiently resistant to acids and alkalis.

I am aware that it has heretofore been proposed to provide a cap with a center spot of paper, and that this is broadly covered in the United States patent to McManus, No. 1,339,066, granted May 4, 1920. The present invention constitutes an improvement upon the subject matter of said patent.

The use of center spots of paper on a commercial scale has not heretofore been economically practicable for several reasons. First, paper has a tendency to absorb liquids and gases and to impart a taste to and discolor many beverages. Moreover, upon absorption of moisture, the paper tends to rupture and expose the cushion material which

it overlies. Again, the difficulty of applying a center spot of paper to the cushion disk presents problems altogether different from the use of a facing disk coextensive with the cushion disk, as for example the facing disclosed in my Patent No. 1,656,614, granted June 17, 1928. A facing which completely covers the cushion disk may be readily united adhesively to the sheet or blank from which the cushion disk is stamped, or in other words, the facing sheet and cushion sheet are united adhesively, and the laminated disks punched therefrom. But in applying a formed center spot, as distinguished from a sheet, due to the fact that it is necessary to absorb the moisture in the adhesive, and as heretofore explained, during the period of moisture evaporation the spot tends to become displaced. This has presented a problem in large scale production, which manufacturers have not heretofore overcome.

Furthermore, due to the moisture and gas absorbent properties of paper, the exposed edge of the paper spot is of an area which cannot be protected by a facing, such as foil or varnish, since the spot is punched from sheets. This objection I have overcome by using a combination consisting of paper of the character described and a liquid and gas resistant fusible adhesive.

I have found that by using a paper of the character herein described, namely, a tough paper having a hard or high-gloss finish, for example, such as is termed a water-finish, the same will not fracture, has an inherent resistance to liquids and gases and serves as an excellent carrier for an exposed or outer facing of varnish and for a backing layer of water-insoluble, heat-fusible and acid and gas-resistant adhesive. I prefer an adhesive having these characteristics and which is also elastic so as to provide an elastic or cushion backing for the varnish layer and the rupturable paper layer.

Extensive commercial use of this new cap has established that it is resistant to acids and alkalis and, therefore, useful in connection with liquids with which a foil spot cannot be employed, and that it is at the same time substantially less expensive than a foil spot cap. Moreover, it does not present the mechanical difficulties which are present in applying a foil center spot. The hard, tough paper serves as an excellent carrier for the varnish film as well as for the gutta percha and insures coextensive varnish and gutta percha films. The gutta percha serves not only as a medium for uniting the paper and varnish films to the cushion layer, but constitutes an acid and gas-resistant, water-insoluble, backing layer, thereby preventing moisture, acids or gases which penetrate the varnish film or paper from attacking the cushion layer. Moreover, the use of a hard paper having a water-finish or high-gloss

permits the use of even films of varnish and gutta percha, since the paper does not absorb either the fused gutta percha or the varnish to any appreciable extent. Consequently, it is unnecessary to employ more varnish or thicker gutta percha than is required to cover completely the surfaces of the paper.

In the cap of my invention, the center disk *d* is composed of a glazed hard paper, such as is generally known as express paper, sulphite paper or bleached kraft paper having a water-finish, i. e., high-gloss finish. Such papers are, of themselves, independently of the finish, fairly non-absorbent, and when required for pasting purposes, are usually provided with a dry gummed surface. The process of producing such gummed paper results in a curl in the paper.

While such hard tough papers are extremely desirable because of their inherent non-absorbent, gas impervious qualities, their use in bottle caps of the type to which my invention relates was impracticable, prior to my invention, because of the difficulties of feeding and cutting previously gummed paper and of cementing same to the cushion disk.

In the cap of my invention, however, to obviate these difficulties, I use ungummed paper of the type above referred to, and secure it to the cushion disk by means of a disk of what is known as gutta-percha tissue, which material, in strip form, may readily be handled in a machine and collated with a facing disk paper strip so as to permit a disk of the paper and a disk of the gutta-percha to be simultaneously cut by the same dies. This not only simplifies the production of the cap, but results in a bonding stratum *e* between the facing disk and the cushion disk co-extensive in area with the facing disk itself. The strip of paper from which the disk *d* is cut is indicated at *d'*, while the strip of gutta-percha forming the stratum *e* is indicated at *e'*.

Gutta-percha is particularly desirable as a bonding medium, not only because it ensures the distribution of the bonding stratum throughout the entire area of the facing disk, but because it will readily adhere, when softened to the desired extent, to the cork or composition cork, and to hard paper. Furthermore, it possesses the qualities of being non-absorbent and non-impervious to gases. The tissue itself is very thin, about a thousandth of an inch, and when softened, instantly adheres to the cork and to the paper, and is not subject to side sliding or slippage, such as liquid cements. The gutta-percha is not affected by fruit acids, minerals, CO₂ or other ingredients present in the fluid contents of bottles with which such caps are designed to be used.

The gutta-percha may be fused or melted at temperatures sufficiently low to avoid in-

jury to the other previously assembled portions of the cap, and will return to its former solid form at normal temperatures with considerable rapidity.

5 In the finished cap, particularly when such caps are desired for use with spring water or mineral waters, it is desirable, after the application of the center disk, to apply a very thin superficial coating *f* of water repellent material, such as paraffin, ceresin or other waxes, throughout the exposed faces of the cushion and center disk. This coating serves to prevent adherence of the cushion disk to the neck of the bottle, due to the action of the water upon the cork or upon the binder of composition cork, and also serves to more or less effectively seal the raw edges of the paper of the center disk, and prevent possibility of the softening of the paper and its ultimate disintegration as a result of a slow absorption of moisture through such raw edges.

A cap embodying the invention lends itself to rapid production methods, which will now be described.

Preparatory to the application of the center disk *d* to the cushion disk *c*, the latter is completely assembled in relation to the shell *a*. The caps, completely assembled, may be rapidly fed in relation to cutting dies *g* and *h*, and as they are brought under these dies, superimposed strips *d'* of paper, and *e'* of gutta percha tissue are fed between the die plate *h* and the punch *g*. With the descent of the punch *g*, disks are simultaneously cut from the strip *d'* and *e'*, such disks being pressed by the punch upon the disk *d* with their centers concentric with each other and with said disk *d*. The punch *g* is maintained at an elevated temperature required to melt the gutta-percha of the strip *e'* and make it tacky, so that substantially simultaneously with the pressing of the disks *d* and *e* against the disk *c*, the disks *d* and *e* will be bonded together with sufficient permanency to ensure accurate positioning of the disk *e* and avoid likelihood of displacement of same thereafter. It is preferable, after the disk *e* has thus been bonded to the disk *d*, to thereafter subject them to continuing heat and pressure for a sufficient interval to ensure the complete fusion of the gutta-percha and a close adhesion of every portion of the disk *e* to the disk *d*.

For this purpose I have shown a carrier *i* and a heated spring pressed plunger *j*.

In the drawing, I have shown the punch *g* and the plunger *j* as being heated by gas jets, but this is immaterial to the invention and other heating means may be employed.

It will be noted that by following the methods above specified, the heat necessary for the fusing of the gutta-percha is applied at the surface of the disk *d*, and that the time intervals are sufficiently short to avoid any

substantial absorption of heat by the cushion disk *c*. The very thin gutta-percha tissue will melt very rapidly, and after the removal of the punch *g* or plunger *j* will solidify with great rapidity and form a substantially imperceptible stratum intermediate the disks *c* and *d*.

If it is desired to provide the cap with a superficial wax surfacing throughout the area of the cushion disk *c* and center disk *d*, a very small quantity of wax, such as paraffin or ceresin wax or wax compounds, may be delivered upon said disks within the shell *a* following the application of the disk *d* to the disk *c*, and prior to the application of heat and pressure through the medium of the carrier *i* and plunger *j*. Such heat and pressure will spread a drop of wax in a very thin film about the entire exposed face of the two disks, the raw edge of the disk *d* also being coated with this wax.

This thickness of the disk *d* will be approximately five-thousandths of an inch, while the thickness of the binding stratum *e*, in the ultimate product, will be relatively less than the thickness of the gutta-percha tissue, or a mere fraction of a thousandth of an inch. The wax surface stratum will also be but a mere fraction of a thousandth of an inch, and is not perceptible to the eye, although sensible to the touch.

The glazed face of the disk *d* does not require a wax surfacing, and, so far as I have been able to determine, most of the wax is expressed from this surface and forced from the disk to the exposed area of the cushion disk *c*.

If it is desired to provide the cap with a wax surface as described, it is essential that this surface be applied after the center disk *d* has been assembled in the cap, since the presence of wax upon the surface of the cushion disk *c*, prior to the application of the disk *d*, would prevent a proper bonding of this disk *d* to the cushion disk *c*.

The glazed surface upon the strip *d'* consists of a waterproof compound consisting of resin, China-wood oil and a drier, and containing a plasticizer.

Express paper which has a high-gloss or water-finish, sulphite paper and bleached kraft paper are all well known commercial products.

This application is a division of my co-pending application Serial No. 360,895, filed May 5, 1929.

It is not my intention to limit the invention to the precise details herein described, it being apparent that such may be varied without departing from the spirit and scope of the invention.

I claim:

1. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard paper having a varnished outer

1,899,783

surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of heat-fusible, acid-resistant and water insoluble adhesive material coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

2. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard, high gloss paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of heat-fusible, acid resistant and water insoluble adhesive material coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

3. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and adhesively uniting the two disks.

4. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard, high-gloss paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the the facing disk between the latter and the cushion disk and adhesively uniting the two disks.

5. A bottle closure comprising a metallic shell, a cushion disk facing said shell, a facing disk of express paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

6. A bottle closure comprising a metallic shell, a cushion disk facing said shell, a facing disk of water-finish bleached kraft paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

In testimony whereof I have hereunto set my hand.

ALBIN H. WARTH.

547 March 20, 1934.

A. H. WARTH

Re. 19,117

PROCESS OF PRODUCING CLOSURES

Original Filed Jan. 7, 1927

Fig. 1.

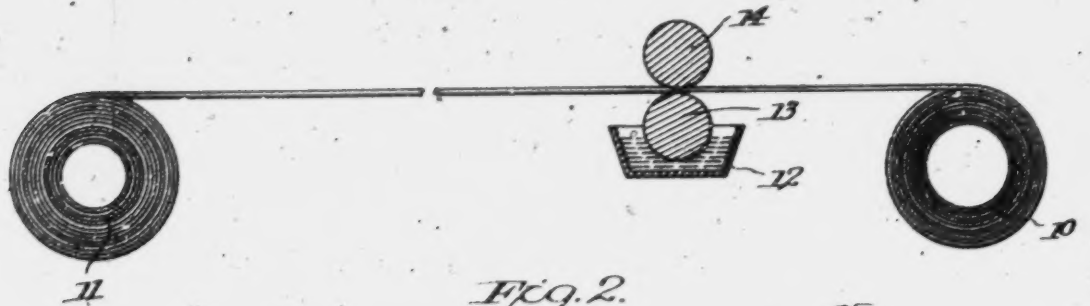


Fig. 2.

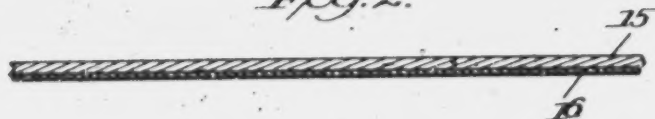


Fig. 3.

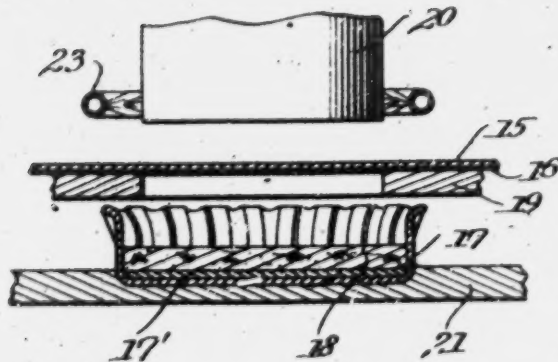


Fig. 4.

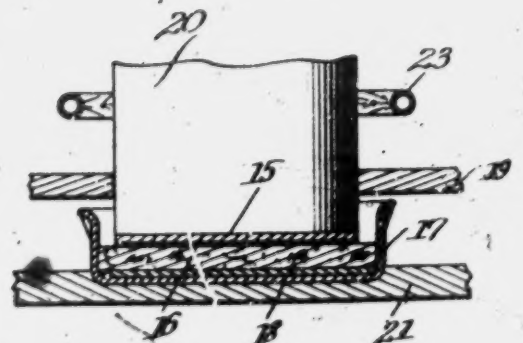


Fig. 5.

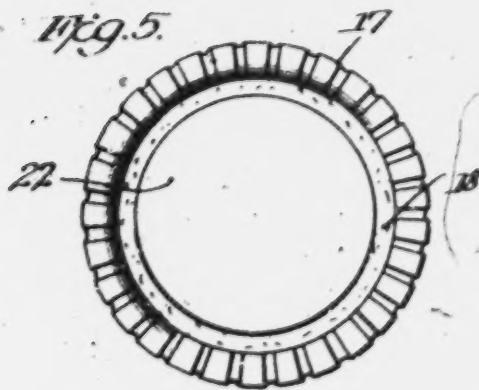
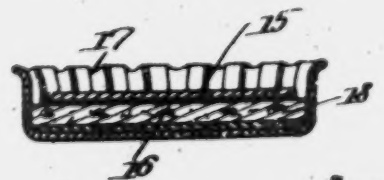


Fig. 6.



Inventor

Albin H. Warth.

By *Cushman, Regent & Co.*

Attorneys

UNITED STATES PATENT OFFICE

19,117

PROCESS OF PRODUCING CLOSURES

Albin H. Warth, Baltimore, Md., assignor, by
mesne assignments, to Crown Cork & Seal Com-
pany, Inc., New York, N. Y., a corporation of
New York

Original No. 1,788,260, dated January 6, 1931,
Serial No. 159,743, January 7, 1927. Applica-
tion for reissue January 23, 1934. Serial No.
707,995

4 Claims. (Cl. 113—80)

This invention relates to a method of produc-
ing closures of the type in which a sealing disc
has a metal foil facing. This type of closure is
characterized by the provision, upon the interior
cushion or sealing disc, of a facing or spot having
a surface which protects the cushion material
from the liquids and gases.

Closures of the well known crown cork type
comprise a metal shell having a skirt and a re-
siliant sealing disc usually made of cork. For
some uses, the sealing discs are given a non-ab-
sorbent, gas impervious and acid resistant fac-
ing of metal foil, e. g. tin foil, or aluminum foil.
Aluminum foil is characterized by the fact that
it is substantially non-absorbent and gas im-
pervious, and for this reason the same and other
materials having similar characteristics are used
to form facing disc or spots upon the cushion
material of crown caps. Ordinarily this facing is
of smaller diameter than the cork discs and such
crowns are known in the trade as spot center
crowns.

These spot center crowns have been produced
in various ways. According to one method a slot
or groove is cut in the cork disc and the spot
is given an intumed rim which is inserted in
the slot. This method is objectionable because
of its expense and because the spots are apt to
drop out. According to another method the spots
are pasted to the cork discs by a casein
paste or a glue. In crowns so made the spots tend
to loosen as the paste or glue is attacked by the
packaged liquids. Furthermore, such method in-
volves difficulties in handling and in applying the
paste or glue. According to still another method
the spots are secured by an underlying tissue of
gutta percha or coated paper. In crowns so made,
like objections are met with. For example, one
difficulty in applying discs made from separate
strips, such as gas and acid resistant material and
the adhesive tissue strips, has arisen from the
necessity for feeding the two strips to the punch-
ing and assembly machine. There is not only dif-
ficulty in feeding the strips, but in cutting the
separate tissue strip with a clean, sharp edge so
as to insure the binding stratum of adhesive being
coextensive in area with the disc of liquid re-
sistant material. As will be understood, the ad-
hesive stratum is intended to act not only as a ce-
ment, but also as a waterproof, non-absorbent,
gas impervious medium for avoiding the possi-
bility of the contents of a bottle getting between
the facing disc and the material of the cap, either
the metal shell itself or a cushion disc of cork
or composition cork.

Furthermore, when using superimposed strips
of the facing material and of adhesive tissue, it
was essential, to bond the adhesive tissue to both
the material of the cushion disc in the cap and
the facing material.

In preparing the rolls of facing material and
adhesive tissue, the practice usually followed was
to form a roll of the tissue in strips of the desired
width, and to unwind this roll and a roll of the
facing material while feeding the two strips one
over the other into the disc forming and assem-
bling machine. This is a troublesome and ex-
pensive operation, because of the frequent break-
age of the adhesive tissue and the necessity
for using fairly heavy tissue to minimize this
tendency. This is due partly to the fact that the
facing material was substantially non-elastic,
while the adhesive tissue possessed a certain de-
gree of elasticity, thus introducing a factor of
difficulty in securing a uniform paying of both
the facing strip and the gutta percha tissue strip.

It is desirable, in the use of facing discs of the
character above referred to, that the adhesive
stratum be as thin as possible, and yet be con-
tinuous throughout the entire area of the fac-
ing disc, and particularly that it be uninter-
rupted about the edge of this disc, since at this
point the disc should be firmly bonded so as to
effectively seal the joint about the edge of the
facing disc. When cutting and applying the
discs of material and adhesive, there is no means
of ascertaining whether the desired conditions
are present in the completed cap. Consequently,
there is always likelihood of imperfectly faced
caps being produced.

With the above conditions in mind, I have pro-
vided material, in strip form, for facing bottle
caps, in which one surface of the strip is pro-
vided with a firmly adherent, continuous thin
facing of adhesive, thus avoiding all necessity
for assembling strips of facing material and of
adhesive tissue preparatory to their use in the
bottle cap facing machine, and all of the disad-
vantages growing out of this practice.

In the strip material of my invention, a very
thin stratum of adhesive is evenly distributed
upon one face of a strip of facing material. The
adhesive is not only firmly bonded to this mate-
rial, but has a smooth surface finish of sufficient
thickness to form the desired firm bond between
a disc cut from the strip and the material of the
cap to which such disc is cemented.

Furthermore, adhesive tissue must be of a
thickness to have sufficient inherent strength
to permit of its being stripped from a roll in a

mill for working same, and to admit of its being cut to the desired width and to be handled in the winding and the disc applying machines, and during the process of its production it has more or less of a longitudinally extending grain, as distinguished from its normal granular formation.

In the application of heat, when bonding the facing material to the cap, when utilizing adhesive tissue, a tendency of the adhesive is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the adhesive tissue when fused, I have been unable to determine. In the strip of my invention, however, the adhesive is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

It is an object of the present invention to provide a method of producing spot center crowns such that the spots are easily and economically secured to the sealing discs and such that they are firmly secured and not liable to become loosened in use.

With these general objects in view the invention consists in the method which will be first described and then more particularly pointed out in the claims.

According to the method of the present invention, the strip material having a surface which is substantially non-absorbent and gas impervious, such as metal foil, is coated with a substance that is devoid of tackiness when dry and has adhesive qualities when soft. In carrying out the method according to what is considered the best practice the adhesive substance is such that it can be applied cold, i. e. at room temperatures, and is waterproof or insoluble in cold water. While various materials may be used I have found a suitable adhesive in a solution of dammar gum and rosin in mineral spirit or turpentine, to which is added 5% or less of a vegetable oil such as soya bean or China-wood oil. The dammar gum and rosin may be in the proportion of 35% to the whole. The adhesive may have a drier of lead resinate, or the like in a proportion of 2% or less. This adhesive is waterproof and is not weakened by gases or acids, such as are present in the bottle contents with which crown caps are usually employed.

While the coating may be applied to the material in various ways, it is conveniently applied in fluid form and cold to a strip of foil from which the spots are to be cut. So far as the method of producing the strip is concerned, it is such that the effective distribution of the adhesive throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of discs from this material when in strip form. Furthermore, the adhesive surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disc applying machine. In this connection it is noted that the spots may be conveniently assembled by feeding a strip of material over successive crown corks and cutting out a disc which is deposited on a cork, such assembling machinery being known in the art.

After the coating is applied to the metal foil it is dried. While this may be effected by air drying at room temperature it is more rapidly

accomplished at a temperature of about 300° F. maintained for about 3 minutes. When dried the coating is devoid of tackiness so that the metal foil may be handled without difficulty or trouble. This is particularly advantageous when the metal foil is to be fed in strips because the application of the adhesive is carried out independently of the assembling steps. Moreover, the coating gives the thin metal foil more or less body which facilitates feeding and cutting. Since the adhesive is applied directly to the surface, of the facing or spot material and firmly bonded thereto, there is no likelihood of difficulties arising as a result of separation of the adhesive from the facing strip during the spot forming operation, either as a result of poor adherence or from suction or otherwise, such as frequently occurs when using superimposed strips of facing material and of adhesive tissue. Moreover, in handling this material the adhesive stratum is incapable of stretch or distortion relative to the spot strip as frequently occurs in the handling of separate strips of adhesive tissue and facing material where any stretch or distortion of the adhesive stratum results in a defective cap and when the stretch is extreme, tearing of the adhesive tissue makes necessary the stoppage of the cap machine until the strip can be repaired.

After the coating is dry, the metal foil spots are assembled, coated side down, with the sealing discs. In case the metal foil is fed in a strip, spots may be cut out and deposited on the sealing disc, as above set forth.

At the time of assembly the coating material is softened to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice the coating will be softened by heat after the crown is assembled. In cutting discs from this improved laminated strip having an adhesive stratum bonded thereto, there is no tendency toward mutilation of the adhesive layer by reason of possible drag of the cutting dies, and each disc, as delivered from the die to within a cap, will present a continuous uninterrupted adhesive surface upon the disc so as to insure, by the subsequent application of heat and pressure, a bond between the disc and the cap cushion layer coextensive in area with the disc.

This possibility of securing a clean cut by the dies for forming the discs, both as to the non-absorbent and gas impervious, and as to the adhesive stratum, insures an effective bond entirely about the edge of the spot or disc, thereby presenting a continuous barrier of non-absorbent and gas impervious material at the space between the disc and the cap which will effectively prevent the seepage of gas or fluid in a bottle between the disc and the portion of the cap to which it is applied.

Although the adhesive facing is sufficient thick to provide an adhesive stratum or layer, it is sufficiently thin to avoid any tendency toward the expression during the application of pressure of any of the adhesive from between the facing material and the portion of the cap to which it is applied. This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the metal foil spot to the cork.

Referring to the accompanying drawing, the is shown a suitable mechanism for coating the strip and for cutting discs therefrom and adhering

fitting the disc to caps at the time of the assembly of the discs with the caps. In the drawing,

Figure 1 is a diagrammatical view showing the fitting of the strip.

Figure 2 is a longitudinal sectional view of a segment of the strip.

Figure 3 is a side elevational view partly in section showing one step in the assembly operation.

Figure 4 is a view similar to Figure 3 showing the spot as it is cut and adhesively united to the cushion layer 18.

Figure 5 is an interior face view of the completed cap, and

Figure 6 is a cross sectional view of the cap shown in Figure 5.

The strip of facing material should have the characteristic of aluminum foil. That is to say, it should present one surface which is non-absorbent and gas impervious. This strip may be fed from a reel 10 to a reel 11, suitably separated so that the adhesive coating may be applied and hardened between the time any portion of the strip leaves the reel 10 and is wound upon the reel 11. For the purpose of applying the adhesive, the same may be maintained in a trough 12, positioned beneath an adhesive applying roll 13, between which and a roll 14, the strip passes, so that as the rolls are rotated the adhesive is applied to the undersurface thereof. As will be understood, the adhesive hardens between the time it is applied and the winding of the laminated strip upon the reel 11.

The completed spot material or liner is illustrated in Figure 2, and comprises the layer 15 of non-absorbent and gas impervious material, such as aluminum foil having on one surface the coating 16 of adhesive, which is preferably of the character hereinbefore described. This adhesive is waterproof or liquid resistant, and will be normally hard, i. e. non-tacky, at room temperature so that the material may be conveniently handled in strip form, but quickly softens under the application of heat, becoming tacky, so that upon the application of pressure, the laminated disc will be adhesively retained in the cap. The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap.

In Figures 3 and 4, there is shown a suitable mechanism for applying the disc and adhesively uniting it to the cork insert at the time the strip is punched from the disc and assembled with the cap.

The cap 17 is of the conventional crown type having an interior facing 18 of cushion material, such as composition cork retained in the cap as by an adhesive layer 17'; the cushion disc and adhesive may be applied to the cap in any suitable manner, for example, as described in the patent to Marsa, No. 1,603,786, granted Oct. 19, 1926. The caps, with the cushion discs inserted therein, may be positioned beneath the cutting dies 19, 20, by means of a traveling bed 21 having suitable sockets for receiving the cap so as to position the same accurately beneath the cutting dies. The strip material for forming the spot is fed beneath the die 20 with the adhesive coating 16 facing the cap, and when the die descends it will cut from the strip, which is fed by any suitable means (not shown), a spot or facing 22 of the character illustrated in Figures 5 and 6. The spot or disc is preferably of smaller diameter than the cap facing so as

to form a substantially centrally disposed spot which leaves around its edge an exposed portion of the cushion material adapted to engage the edge of a bottle neck, the spot being of sufficient size to close the bottle mouth and prevent contact of the contents with the cushion material.

As will be observed (Figures 3 and 4) as the punch 20 descends, it cuts from the strip a spot of the size shown in Figure 5, and continued downward movement presses this disc upon the cushion layer 18.

The punch 20 may be maintained at an elevated temperature, as by means of a burner 23, and the temperature should be sufficient to fuse or soften the adhesive coating and make it tacky so that, at the time the disc is assembled with the cap, the heat and pressure will cause the disc to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid likelihood of displacement of the disc thereafter.

The assembled unit is then permitted to cool and the cooling may advantageously be coupled with pressure, for example, by a plunger. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material.

The resulting crown has a firmly secured metal foil spot which is not liable to become loose in use owing to the fact that the adhesive substance is not soluble in liquids more commonly sealed by crown corks. Moreover, when the metal foil is assembled with the sealing disc it is already prepared for being stuck in place, the sticking being accomplished by the simple application of heat and pressure. The coating operation is a simple one and the coated metal foil is easily handled because the dry coating is not tacky.

A cap made in accordance with this method possesses the advantage of a substantially uniform and complete distribution of the adhesive layer throughout each spot or facing disc. The method has the advantage of eliminating the labor of associating a separate adhesive strip and a strip of facing material, and the further advantage of enabling higher speeds to be maintained in the facing spot applying machine. The elimination of the danger of breakage of a separate adhesive tissue strip avoids the frequent stoppage of the machine, which was unavoidable due to the handling of the somewhat fragile and elastic adhesive tissue.

What is claimed is:

1. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion ma-

terial, and thereafter permitting the adhesive to cool and harden.

2. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing metal foil spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said metal foil strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

3. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with

a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material and thereafter permitting the adhesive to cool and harden while subjecting the assembled unit to pressure.

4. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing metal foil spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said metal foil strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden while subjecting the assembled unit to pressure.

ALBIN H. WARTH.

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July 17, 1934.

A. H. WARTH

1,967,195

METHOD OF MANUFACTURING BOTTLE CAPS

Original Filed Nov. 7, 1930

2 Sheets-Sheet 1

Fig. 1.

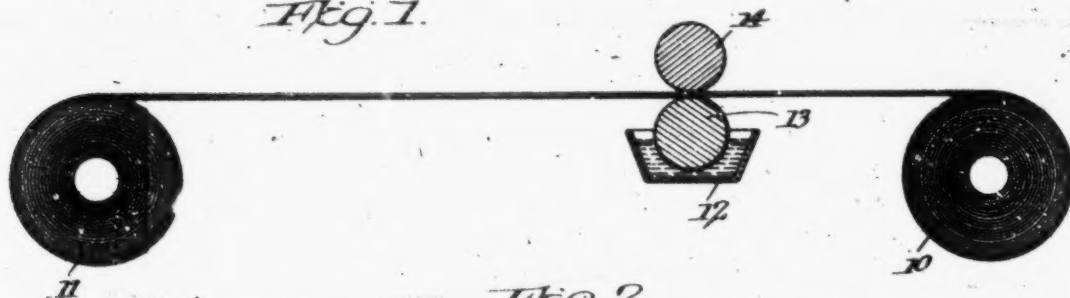


Fig. 2.

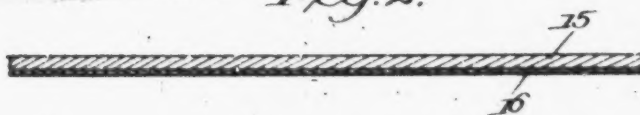


Fig. 3.

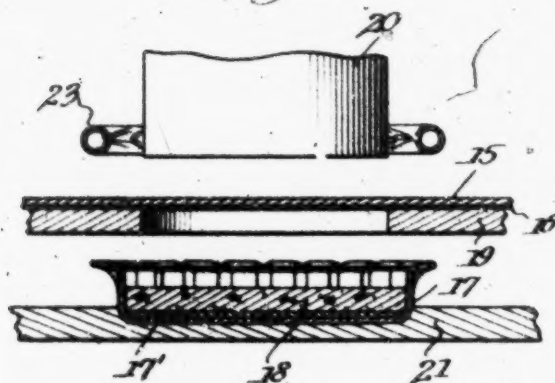


Fig. 4.

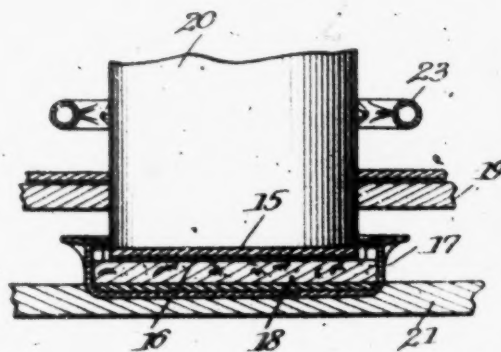


Fig. 5.

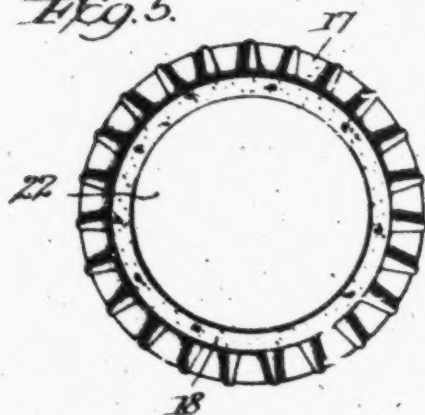
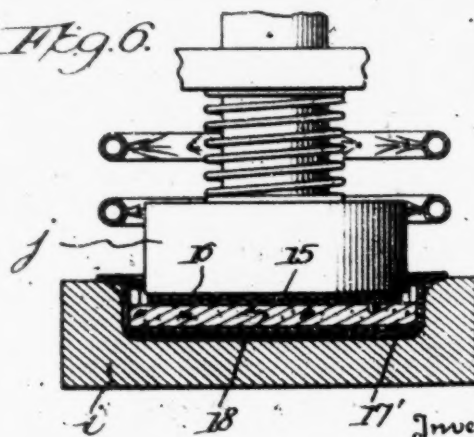


Fig. 6.



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METHOD OF MANUFACTURING BOTTLE CAPS

Original Filed Nov. 7, 1930

2 Sheets-Sheet 2

Fig. 7

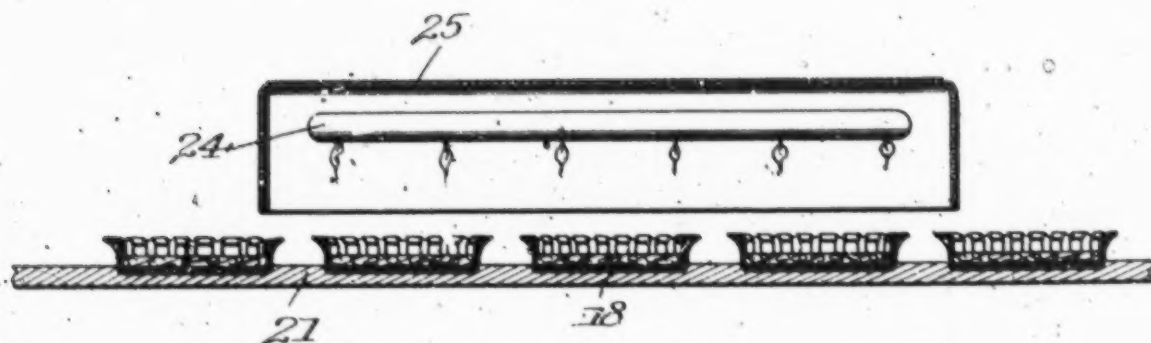
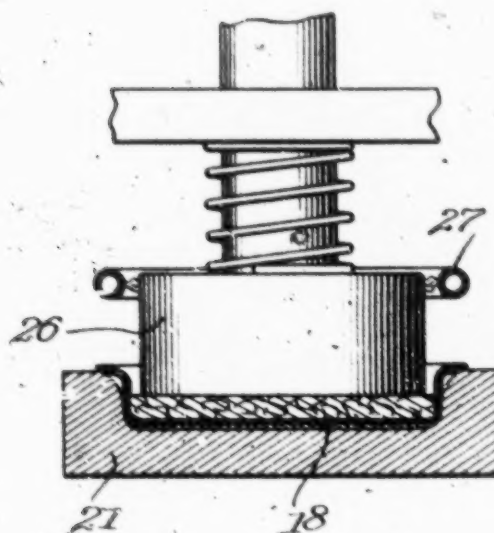


Fig. 8



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By *Lushman, Darby & Lushman*
Attorneys

Patented July 17, 1934

1,967,195

UNITED STATES PATENT OFFICE

1,967,195

METHOD OF MANUFACTURING BOTTLE CAPS

Albin H. Warth, Baltimore, Md., assignor to Crown Cork & Seal Company, Inc., Baltimore, Md., a corporation of New York

Original application November 7, 1930, Serial No. 494,201, which in turn is a division of Serial No. 159,743, January 7, 1927, now Patent No. 1,788,260, dated January 6, 1931. Divided and this application April 4, 1933, Serial No. 664,410

3 Claims. (Cl. 113-80)

This invention relates to a method of producing closures of the type in which a sealing disk is a facing. This type of closure is characterized by the provision, upon the interior cushioning sealing disc, of a facing or spot having a surface which protects the cushion material from liquids and gases.

This application is a division of my copending application, Serial No. 494,201, filed November 7, 1930, and the latter is a division of my application, Serial No. 159,743, filed January 7, 1927, now Patent No. 1,788,260, granted January 6, 1931.

Closures of the well known crown cork type comprise a metal shell having a skirt and a resilient sealing disk or pad usually made of cork. For some uses, the sealing disks or pads are given a facing, e. g., tin foil, or aluminum foil, these materials or other materials of protective character being suitable to provide a non-absorbent, impervious, and acid resistant facing. Ordinarily this facing is of smaller diameter than the cork disks and such crowns are known in the trade as "center spot crowns".

A commercially practicable method for manufacturing center spot crowns must ensure a high speed of production and accurate positioning of the center spot. An object of the present invention is to provide a method which will permit production at the rate of from 400 to 600 per minute, i. e., application of the center spots to the sealing pads at such a rate. A further object is to ensure accurate positioning or centering of the facing or spot while maintaining high speed.

These center spot crowns have been produced in various ways. According to one method a slot or groove is cut in the cork disk and the spot is given an intumed rim which is inserted in the slot. This method is objectionable because of its expense and because the tin foil spots are apt to drop out. According to another method the spots are pasted to the cork disks by a casein paste or a glue. In crowns so made the spots tend to loosen as the paste or glue is attacked by the packaged liquids. Furthermore, such a method involves difficulties in handling and in applying the paste or glue. According to still another method, the spots are secured by an underlying and separately formed and deposited layer of gutta percha or coated paper. In crowns so made, like objections are met with. For example, one difficulty in applying disks made from separate strips, such as gas and acid resistant material and the adhesive tissue strips,

has arisen from the necessity for feeding the two strips to the punching and assembly machine. There is not only difficulty in feeding the strips, but in cutting the separate tissue strip with a clean, sharp edge so as to insure the binding stratum of adhesive being coextensive in area with the disc of liquid resistant material. As will be understood, the adhesive stratum is intended to act not only as a cement, but also as a water-proof, non-absorbent, gas impervious medium for avoiding the possibility of the contents of a bottle getting between the facing disk and the material of the cap, either the metal shell itself or a cushion disk of cork or composition cork.

Furthermore, when using superimposed strips of the facing material and of adhesive tissue, it was essential, to bond the adhesive tissue to both the material of the cushion disc in the cap and the facing material.

In preparing the rolls of facing material and adhesive tissue, the practice usually followed was to form a roll of the tissue in strips of the desired width, and to unwind this roll and a roll of the facing material while feeding the two strips one over the other into the disk forming and assembling machine. This is a troublesome and expensive operation, because of the frequent breakage of the adhesive tissue and the necessity for using fairly heavy tissue to minimize this tendency. This is due partly to the fact that the facing material was substantially non-elastic, while the adhesive tissue possessed a certain degree of elasticity, thus introducing a factor of difficulty in securing a uniform paying of both the facing strip and the gutta percha tissue strip.

It is desirable, in the use of facing disks of the character above referred to, that the adhesive stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disk, and particularly that it be uninterrupted about the edge of this disk, since at this point the disk should be firmly bonded so as to effectively seal the joint above the edge of the facing disk. When cutting and applying the disk of material and adhesive, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of adhesive, thus avoiding all necessity for

assembling strips of facing material and of adhesive tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

5 In the strip material of my invention, a very thin stratum of adhesive is evenly distributed upon one face of a strip of facing material. The adhesive is not only firmly bonded to this material, but has a smooth surface finish of sufficient
10 thickness to form the desired firm bond between a disk cut from the strip and the material of the cap to which such disk is cemented.

Furthermore, adhesive tissue must be of a thickness to have sufficient inherent strength to
15 permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the winding and the disk applying machines, and during the process of its production it has more
20 or less of a longitudinally extending grain, as distinguished from its normal granular formation.

In the application of heat, when bonding the facing material to the cap, when utilizing adhesive tissue, a tendency of the adhesive is to break
25 up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the adhesive tissue when fused, I have been unable
30 to determine. In the strip of my invention, however, the adhesive is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

It is an object of the present invention to provide a method of producing spot center crowns such that the spots may be rapidly and economically secured to the sealing disks and such that
40 they are firmly secured and not liable to become loosened in use.

Another object of the invention is to provide a method in which the sealing discs or "spots" when punched from the strip and delivered to
45 the cushion pad will be stuck in position instantly or as soon as deposited whereby during subsequent operations they will not move from the accurately centered position in which they are placed by the punch and die mechanism. This is
50 preferably accomplished by preheating the sealing pad or cushion sufficiently to cause the thermoplastic coating on the disc to fuse sufficiently when it engages the pad to adhere instantly to the sealing pad.

55 With these general objects in view, the invention consists in the method which will be first described and then more particularly pointed out in the claims.

According to the method of the present invention, the strip material, such as metal foil, is coated with a substance that is devoid of tackiness when dry and has adhesive qualities when
60 soft. In carrying out the method according to what is considered the best practice, the adhesive substance is such that it can be applied cold, i. e., at room temperatures, and is insoluble in cold water. While various materials may be used, I have found a suitable adhesive in a solution of dammar resin and rosin in mineral spirit
70 or turpentine, to which is added 5% or less of a vegetable oil, such as soya bean or China-wood oil. The dammar gum and rosin may be in the proportion of 35% to the whole. The adhesive may have a drier of lead resinate or the like in a
75 proportion of 2% or less. Another example of a

suitable gum type of adhesive is gutta percha or a gutta percha containing compound which have characteristics similar to the composition previously described. Among such characteristics are substantially non-tackiness or adherence at room temperature a high degree of flexibility, insolubility in and imperviousness to moisture or water, acid resistance and heat fusibility, i. e., adapted to be brought to a tacky state by the mere application of heat and without the use of moisture. Such an adhesive is specified in my copending application, Serial No. 414,614, filed December 17, 1929, now Patent No. 1,899,782, granted February 28, 1933.

An adhesive of this character provides a highly flexible adhesive layer continuously united with the facing material. Moreover, such an adhesive is highly resistant to the acids and alkalis ordinarily present in liquids which are to be capped. This is highly important in the manufacture of spot caps, since the liquids attack the adhesive around the edge of the spot. An adhesive of this character, which is not only waterproof, but resistant to acids and alkalis as well, maintains a firm adherent union of the facing or spot material with the cork disk. Due to its flexible character, it will not crack, and, therefore, it constitutes a flexible backing for the spot material.

While the coating may be applied to the material in various ways, it is conveniently applied in fluid or plastic form to a strip of foil from which the spots are to be cut. So far as the method of producing the strip is concerned, it is such that the effective distribution of the adhesive throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of disks from this material when in strip form. Furthermore, the adhesive surface may be thoroughly inspected while
producing the strip material, so that any imperfect product may be discarded before it reaches the disk applying machine. In this connection it is noted that the spots may be conveniently assembled by feeding a strip of material over successive crown corks and cutting out a disk which is deposited on a cork, such assembling machinery being known in the art.

After the coating is applied to the material, it is dried. While this may be effected by air drying at room temperatures, it is more rapidly accomplished at a temperature of about 300° F. maintained for about three minutes. When dried the coating is devoid of tackiness so that the metal foil may be handled without difficulty or trouble. This is particularly advantageous when the metal foil is to be fed in strips because, the application of the adhesive is carried out independently of the assembling steps. Moreover, the coating gives the thin metal foil more or less body, which facilitates feeding and cutting.

Since the adhesive is applied directly to the surface of the facing or spot material and firmly bonded thereto, there is no likelihood of difficulties arising as a result of separation of the adhesive from the facing strip during the spot forming operation, either as a result of poor adherence or from suction or otherwise, such as frequently occurs when using superimposed strips of facing material and of adhesive tissue. Moreover, in handling this material the adhesive stratum is incapable of stretch or distortion relative to the spot strip as frequently occurs in the handling of separate strip of adhesive tissue and facing material where any stretch or distortion of the ad-

re-stratum results in a defective cap and when stretch is extreme, tearing of the adhesive makes necessary the stoppage of the cap line until the strip can be repaired.

After the coating is dry, the metal foil spots are applied, coated side down, with the sealing. In case the metal foil is fed in a strip, it may be cut out and deposited on the sealing as above set forth.

The time of assembly the coating material is dried by heat to render it adhesive and the assembly unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice, the coating will be dried by heat after the spot is applied. This may be accomplished in any suitable manner, for example by a heated plunger or a plunger and heated table such as illustrated in Figure 6 of the accompanying drawings. The heat softens the coating and renders it adhesive and the pressure serves to unite the spot to the cork. I also prefer to preheat the cushion disc or pad in the metal mold so that, as soon as the spot is applied, the thermoplastic adhesive thereon will be fused or softened and thereby cause the spot to be fixed in the accurately centered position in which it is deposited and held against dislodgment during subsequent steps and passage through the apparatus. In cutting disks from this improved laminated strip having an adhesive stratum bonded thereto, there is no tendency toward mutilation of the adhesive layer by reason of possible drag in the cutting dies, and each disk, as delivered from the die to within a cap, will present a continuous uninterrupted adhesive surface upon the cork so as to insure, by the subsequent application of heat and pressure, a bond between the disk and the cap cushion layer coextensive in area with the disk.

This possibility of securing a clean cut by the means for forming the disks, both as to the non-absorptive and gas impervious, and as to the adhesive stratum, insures an effective bond entirely about the edge of the spot or disk, thereby presenting a continuous barrier of non-absorptive and gas impervious material at the space between the disk and the cap which will effectively prevent the seepage of gas or fluid in a bottle between the disk and the portion of the cap to which it is applied.

Referring to the accompanying drawings, there is shown a suitable mechanism for coating the strip and for cutting disks therefrom and adhesively uniting the disk to caps at the time of the assembly of the disks with the caps. In the drawings,

Figure 1 is a diagrammatical view showing the coating of the strip.

Figure 2 is a longitudinal sectional view of a segment of the strip.

Figure 3 is a side elevational view partly in section showing one step in the assembly operation.

Figure 4 is a view similar to Figure 3 showing the spot as it is cut and adhesively united to the cap at the time of assembly.

Figure 5 is an interior face view of the completed cap.

Figure 6 is a cross-sectional view of the cap shown in Figure 5 showing the use of additional pressure means which may be utilized following the action of the punch as illustrated in Figures 3 and 4.

Figure 7 illustrates a suitable means for applying heat to the sealing pads or disks for preheating the assembled crowns which are fed

to the punch whereby to effect adhesion of the center spot as soon as it is deposited, and

Figure 8 is a view illustrating another mechanism suitable for preheating.

The strip of facing material should have the characteristic of aluminum foil. That is to say, it should present one surface which is non-absorbent and gas impervious. This strip may be fed from a reel 10 to a reel 11, suitably separated so that the adhesive coating may be applied and hardened between the time any portion of the strip leaves the reel 10 and is wound upon the reel 11. For the purpose of applying the adhesive, the same may be maintained in a trough 12, positioned beneath an adhesive applying roll 13, between which and a roll 14, the strip passes, so that as the rolls are rotated the adhesive is applied to the undersurface thereof. As will be understood, the adhesive hardens between the time it is applied and the winding of the laminated strip upon the reel 11.

The completed spot material or liner is illustrated in Figure 2, and comprises the layer 15 of non-absorbent and gas impervious material, such as aluminum foil, having on one surface the coating 16 of adhesive, which is preferably of the thermoplastic character hereinbefore described. This adhesive is waterproof or liquid resistant, and will be normally hard, i. e., non-tacky, at room temperature, so that the material may be conveniently handled in strip form, but quickly softens under the application of heat, becoming tacky, so that upon the application of pressure, the laminated disk will be adhesively retained in the cap. The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap.

In Figures 3 and 4, there is shown a suitable mechanism for applying the disk and adhesively uniting it to the cork insert at the time the disk is punched from the strip.

The cap 17 is of the conventional crown type having an interior facing 18 of cushion material, such as composition cork retained in the cap as by an adhesive layer 17'; the cushion disk and adhesive may be applied to the cap in any suitable manner, for example, as described in the patent to Marra, No. 1,603,786, granted October 19, 1926. The caps, with the cushion disks or pads inserted therein, may be positioned beneath the cutting dies 19, 20, by means of a traveling bed 21 having suitable sockets for receiving the cap so as to position the same accurately beneath the cutting dies. The strip material for forming the spot is fed beneath the die 20 with the adhesive coating 16 facing the cap, and when the die descends it will cut from the strip, which is fed by any suitable means (not shown), a spot or facing 22 of the character illustrated in Figures 5 and 6. The spot or disk is preferably of smaller diameter than the cap facing so as to form a substantially centrally disposed spot which leaves around its edge an exposed portion of the cushion material adapted to engage the edge of a bottle neck, the spot being of sufficient size to close the bottle mouth and prevent contact of the contents with the cushion material.

As will be observed (Figures 3 and 4) as the punch 20 descends, it cuts from the strip a spot of the size shown in Figure 5, and continued downward movement presses this disk upon the cushion layer 18. As hereinafter described, the method contemplates a preheating of the assem-

bled crown, i. e., the metal shell with a sealing pad therein, before the spot is deposited so that the spot will adhere to the pad as soon as it is deposited.

5 The punch 20 may, if desired, be maintained at an elevated temperature, as by means of a burner 23, and the temperature should be sufficient to fuse or soften the adhesive coating and make it tacky so that, at the time the disk is
10 assembled with the cap, the heat and pressure will cause the disk to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid likelihood of displacement of the disk thereafter.

15 As hereinbefore stated, after the spot is positioned on the sealing pad heat and pressure may be applied, as by a plunger or a plunger and heated table. In Figure 6 there is shown for this purpose a carrier *i* and a spring-pressed plunger *j*. The plunger *j* is heated by gas jets, and thus the plunger serves as means for applying a continuing heat and pressure after the punching operation to ensure complete fusion of the adhesive
20 and a close adhesion of every portion of the disk 15 to the disk 18.

It may be desirable to secure the spot in position, prior to the heat and pressure steps, sufficiently to prevent dislodgment of the spot during any interval between assembling and final sticking. This may be accomplished, for example, by preheating the assembled crown i. e., metal shell with the sealing pad or disk therein, to soften the coating as soon as the metal foil spot is deposited. The coating thus becomes tacky enough, as soon as deposited on the sealing pad, to hold the metal foil spot from getting out of position during ordinary passage through assembling apparatus. In Figure 7, there is illustrated a suitable means for preheating the sealing pads to ensure adherence of the spot as soon as deposited. A burner 24 is positioned over the conveyor 21 and spaced sufficiently therefrom to apply to the pads heat sufficient to cause the spots to adhere to the latter as soon as deposited. This burner
45 may be disposed within a hood 25 which confines the heat and tends to direct the same against the pads. As will be understood, it is sufficiently elongated to create sufficient heat for the purpose desired. This heater may be positioned immediately in advance of the punch 20 so that heat is not appreciably dissipated or lost before the punching operation. In Figure 8 there is illustrated another mechanism which may be used
50 for preheating. A plunger 26 maintained at an elevated temperature, as by a gas burner 27, when positioned immediately in advance of the punch may be utilized to raise the temperature of the pads sufficiently to cause the spot to adhere to the pads as soon as deposited thereon.

60 The assembled unit is then cooled and the cooling may advantageously be coupled with pressure, for example, by a plunger such as illustrated in Figure 6, but which would not, of course, be heated. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material.

The resulting crown has a firmly secured metal

foil spot which is not liable to become loose in use, owing to the fact that the adhesive substance is not soluble in liquids more commonly sealed by crown corks. Moreover, when the metal foil is assembled with the sealing disk, it is already prepared for being stuck in place, the sticking being accomplished by the simple application of heat and pressure. The coating operation is a simple one and the coated metal foil is easily handled because the dry coating is not tacky. 80 85

A cap made in accordance with this method possesses the advantage of a substantially uniform and complete distribution of the adhesive layer throughout each spot or facing disk. The method has the advantage of eliminating the labor of associating a separate adhesive strip and a strip of facing material, and the further advantage of enabling higher speeds to be maintained in the facing spot applying machine. The elimination of the danger of breakage of a separate adhesive tissue strip avoids the frequent stoppage of the machine, which was unavoidable due to the handling of the somewhat fragile and elastic adhesive tissue.

I claim:

1. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, and severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads.

2. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, and then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads.

3. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing the linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads, and then placing the linings assembled in the caps under pressure during the cooling thereof.

ALBIN H. WARTH.

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April 24, 1934.

A. H. WARTH

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SPOT CROWN AND LINER MATERIAL THEREFOR

Filed June 16, 1933

Fig. 1.

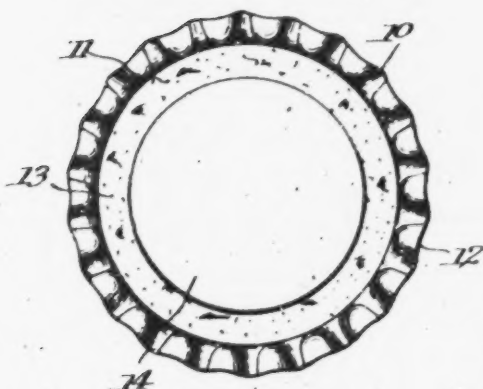


Fig. 2.

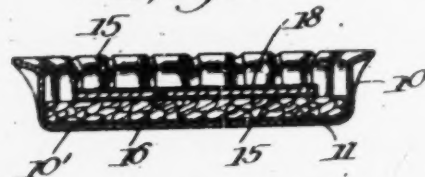


Fig. 3.



Fig. 4.

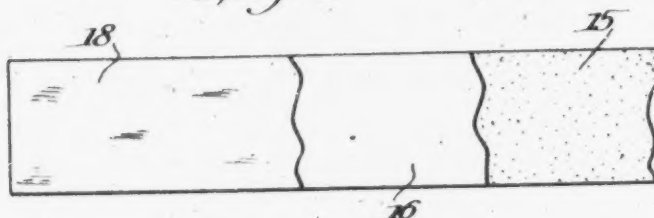


Fig. 5.



Fig. 6.

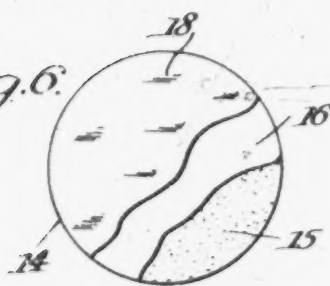


Fig. 8.

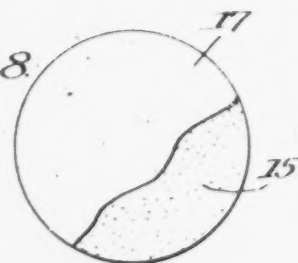
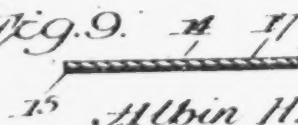


Fig. 7.



Fig. 9.



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By *Linsman, Darby & Linsman*
Attorneys

Patented Apr. 24, 1934

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UNITED STATES PATENT OFFICE

1,956,481

SPOT CROWN AND LINER MATERIAL
THEREFORAlbin H. Warth, Baltimore, Md., assignor to
Crown Cork & Seal Company, Inc., Baltimore,
Md., a corporation of New York

Application June 16, 1933, Serial No. 676,190

16 Claims. (Cl. 215-39)

The present invention relates to container closures and particularly to cap of the crown type which include a shell, a cushion liner affixed thereto, and a center spot facing of resistant material such as paper or metal foil bonded to the liner, by a stratum of liquid-resistant and thermo-plastic or heat-fusible adhesive. A closure of this type is described for example in my Patent 1,899,783 granted February 28, 1933. With such a cap the spot is centered with respect to the liner disc and in use, the spot is interposed between the sealing lip of a container and the cushion liner, whereby the seal is enhanced and the contents are kept out of contact with the cushion material of the liner.

It is important (1) that the spot be maintained in this centered relationship and that the adhesive afford a secure and permanent bond to assure optimum sealing, and (2) that the adhesive stratum which is liquid-resistant be maintained continuous and as a completely and impervious covering to cooperate with the spot facing and afford an additional barrier means to prevent contact of the contents with the material of the cushion liner. It is also desirable that the adhesive be heat-fusible or thermo-plastic, whereby the facing may be adhered to the cushion liner by the application of heat and pressure; for example, in accordance with the method described in my Patent No. 1,788,260, granted January 6, 1931.

Thus, the liner material usually of cork or composition cork, i. e., granulated cork and a binder, and occasionally rubber, rubber composition, cardboard or paper materials, has a tendency to shrink or contract, and may in some cases expand, while the cap is being aged in storage and during incidental handling prior to application to a container. This is particularly true with certain types of caps, for example, those containing composition cork, i. e. granulated cork and a binder, where it is desirable that the caps be stored for a period of four to six months before being shipped to the consumer, and during this curing period there occurs a partial shrinkage of the composition cork disc.

Therefore, if the adhesive employed has a tendency to contract or stiffen or dry out, i. e. lose its life or granulate, the continuous adhesive stratum is cracked and physical changes, such as shrinkage in the liner will cause the bond to fracture with consequent further disruption of the adhesive stratum. If the fracture is partial, the facing is loosened and shifted out of center. In many cases, the fracture is so complete that

the facing actually falls off or completely separates. Where observable such defective caps are rejected and this is not only expensive from the material standpoint, but usually the entire lot must be again inspected with consequent loss of time.

If the adhesive bond has assumed a brittle state or become weakened and fragile, and the cap is applied to the container, the compression of the cork liner incident to the capping operation which causes it to bulge downwardly in the center, fractures the adhesive and allows the facing spot to shift substantially, and separate from the liner. Hence, the seal is imperfect and the contents are afforded opportunity to contact with the liner disc. Moreover, since the adhesive layer is liquid-resistant as described in my aforesaid patent, this slippage and partial or complete separation of the facing and liner and breaking down of the adhesive stratum, destroys the waterproof barrier between the contents and the liner formed by such layer bonding material. That is to say, the stratum of adhesive coextensive with the facing affords an additional means to prevent the contact of the contents with the material of the liner disc. Since not infrequently, the liquid contents permeate the paper or foil if the facing is defective, any shifting or separation of the facing and disruption of the continuous bonding stratum therefore renders this interposed protecting layer ineffective, in that exposed unprotected areas of the cushion material are presented to the contents.

This same objection arises where the bond or adhesive of the cap loses its life and becomes brittle or contracts and granulates in use upon the container. Mineral waters for example, and other liquids are often bottled under high gaseous pressures of $4\frac{1}{2}$ to 6 volumes of carbon dioxide and stored for a year or more. Should the protective adhesive layer tend to brittleness and contract or granulate or the internal pressure fractures the bond to loosen the spot, exposed portions of the area of the liner will be wetted by the contents, particularly where the same have permeated the material of the facing spot.

Hence, resultant wetting of the liner disc will occur due to displacement of the spot facing and contraction and fracture of the adhesive and waterproof barrier. This wetting or saturation of the liner will cause the same to warp or expand, and as the bulge increases, the break becomes intensified and finally the spot completely separates from the liner. With the breaking down of the adhesive protecting layer, the seal

is destroyed and contact of the contents with the liner which is generally to be avoided ensues. This produces off-flavors and discoloration, reducing the value of the sealed product.

5 The above objections and disadvantages are those encountered with caps wherein the facing is united to the cushion liner by conventional adhesives. Such adhesives as gutta percha composition or tissue, referred to in my above mentioned patent, are satisfactory, but do not
10 entirely solve the several problems recited. Among the difficulties which have arisen in connection with the use of caps employing a gutta percha adhesive to unite the center spot to the cushion liner are the following:

15 (1) Gutta percha in the presence of moisture or high heat, to which the caps are subjected in pasteurization and sterilization processes, tends to swell and to separate the facing from the cushion liner. This is particularly noticeable upon the removal of crown caps from beer and other beverages after the caps have been applied for an extended period of time, such as
20 several months.

25 (2) Gutta percha has a comparatively greater adhesive affinity for cork (composition or natural) than for metal foil. This is particularly evident upon the removal of caps from bottles after they have been applied for an extended period. It is observed that the center spot facing either falls off or may be readily removed from the cork disc, leaving a distinct layer of gutta
30 percha. Very little, if any, of the gutta percha adheres to the facing. This is so objectionable that bottlers of many products, including "White Rock" water, will not use center spot caps in which the foil is adhesively united to the cork liner with gutta percha.

35 (3) After application to a bottle for an extended period gutta percha tends to oxidize and lose its plasticity. Consequently, variation of the shape of the cushion liner, such as occurs under temperature and moisture changes during storage of the caps, tends to cause the facing
40 to separate or fall from the cushion liner, due to the lack of plasticity in the gutta percha stratum. Crown caps are frequently stored in the manufacturing plant for months and are stored by the purchaser for an equal period before use. Hence, the desirability of an adhesive
45 which is permanently plastic, or substantially so.

50 (4) In order to obtain a highly effective adhesion of gutta percha to metal foil, particularly in the warm weather, it is necessary to size the surface of the metal foil before applying the gutta percha. This involves a manufacturing
55 step which it would be preferable to eliminate. The necessity for this pre-sizing becomes evident after the material has been in the cap for a considerable period.

60 It is an object of the present invention to provide an improved cap including a facing adherently united thereto by an adhesive having substantially all of the advantages of gutta percha as described in my aforesaid patent and which
65 overcomes the foregoing and other objections to a cap containing gutta percha as a uniting medium for the center spot.

70 I have discovered that in order to meet the severe conditions mentioned above, the cap must include a facing secured to the cushion liner by a layer of thermo-plastic or heat-fusible adhesive which is (1) permanently plastic; (2) non-oxidizable and non-drying and (3) firm at
75 normal or room temperatures. I have further dis-

covered that these characteristics are obtainable by the use of an adhesive containing, as a base, a cellulose derivative adhesive, such as nitro-cellulose. Cellulose acetate may also be used. I have found it highly desirable to enhance the adhesive properties of the nitro-cellulose by the use of a modifying agent, and for this purpose I prefer a resin, and particularly a synthetic resin, as hereinafter set forth in detail. A suitable solvent and also a plasticizing medium may be used.

By permanently plastic, I mean that the adhesive has a longer life than conventional adhesives and is free from any tendency to dry out or granulate or assume a brittle state. This is, in a cap of the present invention, the adhesive exhibits an ability to remain plastic, as well as flexible, resilient and firm, for long periods of time under the various conditions surrounding its manufacture and use upon a container.

By non-oxidizable, I mean that the adhesive stratum is not effected by exposure to air or oxygen and oxygen compounds such as may be produced in a sealed container. This freedom from oxidization is directly traceable to the absence of any substantial amounts of oxygen reacting substances in the composition or drying oils such as tung oil or soya bean oil which tend to oxidize and thus contract or granulate to render the stratum brittle and fragile. While the absence of oils which have an extreme oxidizing tendency with a resultant brittling effect is emphasized, I do not mean to exclude the use of oils which do not have this effect. Oils may be divided into three classes, namely (a) oxidizing or drying oils, e. g. tung or linseed (raw Chinawood or raw linseed oil); (b) semi-oxidizing oils, e. g. processed rape seed oil, and (c) non-oxidizing oils, e. g. such as castor oil and fish oil. The use of the non-oxidizing oils and of small amounts combined therewith of semi-oxidizing oils with the amount being insufficient to have a marked brittling effect is not excluded.

By non-drying, I mean that the adhesive is free of substances which dry out themselves or accelerate drying and cause contraction and brittleness. Thus the absence of oxidizable and non-drying constituents favors the preservation of permanent plasticity for considerably longer periods than can be obtained with conventional bonding agents.

By firm, I mean that the adhesive, at normal room temperatures or temperatures somewhat above or below normal, is non-tacky and does not flow. It is, however, flexible and yielding or resilient, and is plastic, so that it does not fracture or crack. These qualities are important in preserving the necessary continuous liquid-resistant barrier in a cap, and insure that the bond as well as the protective adhesive will not break down where the cushion liner deforms.

In these particular respects, namely the permanently plastic, and non-oxidizable and non-drying characteristics and firmness, as just explained, of the union between the liner and facing spot, the cap of the present invention improves upon the conventional article, and in addition has all of the various advantages recited in my aforesaid patent.

The adhesive of the present invention is fusible at a relatively low temperature, water insoluble and acid-resisting, gas-resistant, forms a thin continuous, elastic and resilient coating or layer between the facing disc and the cushion liner.

The cap of the present invention is, therefore

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an improvement over conventional caps, in that reason of the permanent plasticity of the adhesive and its freedom from oxidization and drying and its firmness under temperature conditions usually encountered, the facing is held to the liner securely throughout its area and no opportunity is presented for objectionable slipping or separation of the facing or disintegration of the continuous barrier layer. Hence, the seal is maintained and opportunity for contact of the contents with the cushion material of the liner is reduced to a minimum.

Such conditions as shrinkage of the liner due to curing or storage, or bulging of the liner upon capping a container or upon becoming wetted do not impair the union between the facing and the liner, since the constant plastic nature of the adhesive and its inherent flexibility and resilience compensate for these physical deformations without affecting the bond or the continuous protective barrier constituted by the adhesive stratum.

The cap of the present invention, furthermore, and of equal importance with the other advantageous characteristics, is capable of production at a considerable saving over the cost of producing conventional caps. This is due (1) to the use of less expensive adhesive; (2) to a shorter period of operation of affixing the spot to the cap and in producing the sheet or strip spot material, and (3) the spot material or the caps do not have to be stored or maintained or acted upon in a predetermined temperature controlled atmosphere or refrigerated, since the adhesive although heat sensitive and thermo-plastic, is, nevertheless, firm at normal or room temperatures and does not melt and flow or tend to dry when the temperatures are somewhat elevated above normal. The same advantageous condition is maintained at reduced temperatures. The advantages of these factors with resultant saving in the cost of production are appreciable when it is understood that substantially 80 million gross of caps are produced yearly.

It is a further objection of present day spot crowns that when subjected to an indentation pressure near the edge, the spot lifts, i. e. the edge separates from the liner. Thus any pressure upon the spot near the edge thereof will act to loosen the same, producing an unreliable closure. Indentation pressures, of course, occur at the capping machine as well as in the hoppers of the crowning machine where the caps are subjected to agitation. Frequently also these indenting pressures are exerted during the handling of the caps. When the edge of the spot is turned up even to a slight extent, any sliding action of the flared skirt of another crown contacting with the spot will dislodge it, sometimes completely. As a result the spots are loosened or entirely separated and when the crown is applied to a container, the spot may drop into the container or often the spot having become separated the cap is applied without the spot. Either of these conditions will produce deterioration of the product being bottled and is especially true in connection with pressure beverages as well as beer. The cap having a spot united to the liner thereof by a permanently plastic varnish-like coating in accordance with the present invention, is resistant to these objectionable indenting pressure notwithstanding that the spot be repeatedly subjected to the same.

As is well understood, in the punching out of spots from ribbon or sheet material, there occurs considerable waste, possibly 40%. With the

present material, and particularly in the case of metal foils such as tin or aluminum, this waste can be compacted or compressed and directly melted for producing secondary pig metal or may be melted down with other metals in the foundry for the manufacture of alloys such as Alloy 12. Stated again, the use of a foil having a plastic varnish coating increases by several hundred per cent the value of the recovery from the waste over present materials.

In connection with the avoidance of temperature controlled conditions or refrigeration, I have found that a container having a cap of the present invention applied thereto is capable of sterilization without injury to the spot facing or its adhesive bond to the liner. This is advantageous in that the cap can be used upon bottled goods which must be sterilized and the sterilization can take place with the cap on the container, thereby saving a considerable expense in operation.

Referring to the drawing:

Figure 1 represents a bottom plan view of the usual crown cap having the cushion liner and center spot applied thereto.

Figure 2 is a sectional view of the cap of Figure 1 and showing the use of a center spot of paper provided with a resistant surface coating.

Figure 3 is a sectional view of the cap of Figure 1 showing a metal foil facing.

Figure 4 is a view representative of a strip or sheet of the spot material comprising a layer of paper having a coating of varnish on its exposed surface and a layer of adhesive on its undersurface from which the spot of Figure 2 is formed by punching.

Figure 5 is a view representative of a sheet or strip of spot material comprising a layer of metal foil having a coating of adhesive on its undersurface from which the spot of Figure 3 is formed by punching.

Figure 6 is a view of a spot after the same has been punched from the strip or sheet material of Figure 4.

Figure 7 is a sectional view of the spot of Figure 6.

Figure 8 is a view of the spot punched from the foil material of Figure 5, and

Figure 9 is a sectional view of Figure 8.

Referring to the drawing, I have illustrated in Figure 1 an ordinary crown shell 10 having a top 11 and a crimped skirt 12.

Affixed to the shell in the usual manner as by a heat and/or pressure sensitive adhesive or lacquer 10, is a cushion disc or liner 13 of natural cork, cork composition, pasteboard, rubber or rubber composition, or any of the known materials.

A center spot 14 of less diameter than that of the cushion liner 13 is attached to the liner by means of a stratum of adhesive 15. This facing spot is of an area to engage the sealing lip of a container and prevent the contents of the container from contacting with the material of the liner 13.

While the invention is particularly concerned with center spot facings, as shown in Figure 1, it is also applicable to overall facings, that is facings which are coextensive with the area of the liner or disc.

The center spot 14 will comprise the usual spot material such as paper 16, as shown in Figure 2, or metal foil 17, as shown in Figure 3. In the case of paper, the spots 14 are made of express, Kraft rope or other tough qualities having a

hard or high-gloss finish and are preferably coated with an acid, alkali and oil and water-resistant varnish 18. In the case of the metal foil spot 17, this usually is aluminum or tin foil and its exposed surface is ordinarily not treated.

The undersurface of the spot is provided with a continuous stratum of the adhesive 15 by which the spot is united to the liner 13.

In Figure 4, I have shown a laminated strip or sheet of paper facing material comprising a continuous coextensive underlayer 15 of adhesive, an intermediate layer 16 of paper and a continuous coextensive surface layer 18 of varnish. In Figure 5, I have shown a strip or sheet of metal foil facing material, wherein the continuous and coextensive layer of adhesive is indicated at 15 and the foil at 17. It will be understood that the unitary laminated structure comprising a coextensive and continuous layer of adhesive facing material of paper and resilient varnish or foil, is fed to a suitable punching machine, as described in my aforesaid patent, from which the spots or overall facings are produced and applied to the cushion liner of the cap by heat and pressure.

Referring to Figure 6, I have shown a spot punched from the material of Figure 4 and in Figure 7, I have shown a section of the same showing the unitary character of the article. In Figure 8, I have illustrated a spot punched from the material of Figure 5 and in Figure 9 a section through the same.

The usual practice in the manufacture of caps of the type disclosed has been to employ gutta percha in tissue or composition form which is a heat-sensitive adhesive and which is rendered tacky by the action of heat at the spotting machine and while in this condition the spot is punched out and pressed into contact with the exposed surface of the liner 13 and united thereto by heat and pressure. The usual procedure is in accordance with the method described in my Patent No. 1,788,260, granted January 6, 1931. Gutta percha, however, presents the several objections above mentioned which impair the utility of the cap.

Gutta percha is probably the most widely recognized and used of the various adhesives and cements and is quite satisfactory. The gutta percha is in the form, however, of an oxidizable composition and frequently in storage, as well as when used upon a container, oxidation and drying take place and the adhesive bond becomes brittle or granulates, so that the adherence of the spot to the liner is seriously reduced. So much so, in fact, that where the caps are allowed to remain in storage or are being cured and the liner 13 expands or contracts, the relatively fragile bond is broken and disrupted and the spot is loosened, so that the cap cannot be used. This same condition occurs where the cap is used upon pressure beverages, since the bond becomes stiff or fragile and any inequalities which are produced in the liner as by capping or internal pressures or moisture act to affect the bond, so that the spot becomes loosened and the continuous stratum is disrupted whereupon the contents seep past the spot into contact with the cushion material. In some cases, this actually causes contamination of the product and where seepage exists, should a break in the bond have occurred, the bond is completely lost, since the soaking of the liner will produce a warping which the adhesive

uniting the facing to the liner is incapable of compensating for.

I have found that with a cap of the cap spot type wherein the center spot is united to the cushion layer, in the manner now to be described, that a permanent and continuous fluid-resistant bond is assured between the facing and the cushion layer and one which not deteriorate in storage or become defective under the normal conditions of usage, i. e. unaffected by deformation of the liner disc.

I employ as the adhesive 15 a composition having all of the advantages of gutta percha as set forth in my aforementioned patent, i. e. it is heat fusible at a relatively low temperature; water insoluble and acid-resistant, gas-resistant, elastic and resilient and forms a thin continuous coating or stratum. But additionally and, moreover, the present composition (1) is permanently plastic, (2) is non-drying and non-oxidizable and hence does not assume a brittle state, and (3) is firm, i. e. non-tacky and does not flow at normal room temperature or somewhat elevated temperatures or harder at reduced temperatures remaining within the limits usually encountered plastic, resilient and flexible. Gutta percha tends to soften and flow at but slightly raised temperatures and must often be refrigerated. On the other hand, the cap of this invention may be applied to a container and subjected to sterilization temperatures without injury.

The composition which I employ, i. e. a plastic varnish coating, is prepared as a flowable mass such as a paint or lacquer and is spread or sprayed upon the sheet or strip paper or foil surface, as desired. This composition comprises a resin, preferably a synthetic resin of the polyhedric alcohol-polybasic acid ("Glyptal") type, or a "Rezyl" resin, or a "Vinylite" resin (vinyl acetate), a cellulose derivative, such as nitro-cellulose, a plasticizer, such as the aliphatic tartrates and phosphates, and a solvent preferably an organic solvent having proper drying properties. These vinylite resins are usually polymers of vinyl acetate or vinyl chloride, or mixtures of vinyl acetate and the chloride. Vinyl acetate particularly can be combined well with soluble cottons (nitro-cellulose).

The resin is not limited to the glyptal or rezyl type, but should be one capable of dissolving the cellulose derivative and have a high coefficient of plasticity.

The resin or the composition may be modified by adding thereto in small percentage, non-drying vegetable oils such as castor oil to increase the plasticity. Semi-drying or drying oils are not desirable as they undergo oxidation.

Any suitable cellulose derivative may be used and in addition to nitro-cellulose, I use cellulose acetate.

The resin serves to modify and enhance the adhesive properties of the nitro-cellulose, and hence is a desirable modifying agent.

I have mentioned the particular plasticizers but it will be understood that others equally capable of acting as a solvent for the nitro-cellulose are employed. In this connection, I prefer butyl tartrate. Also tricresylphosphate and phthalates such as dibutyl and amyl phthalates are employed. I also use methyl abietate with either ethyl or butyl alcohol. This latter is particularly useful for dissolving dammer and natural resins, as well as vinylite resins, where rubber is desired as a constituent of the plastic var-

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sh. I find that a plastic coating of rubber containing varnish is also useful as the adhesive.

The organic solvent preferably consists of toluol, ethyl acetate, which promotes quick drying, and denatured alcohol, but, of course, other solvents capable of dissolving the mixture may be employed. Butyl acetate and butyl alcohol may also be used in the solvent mixture, as well as benzol although it is not preferred. I do not wish to be limited with respect to the solvent employed, provided, it imparts to the adhesive material proper drying properties.

A preferred composition of the above ingredients is given below:

	Per cent
Synthetic resin.....	10
Nitro-cellulose.....	14
Plasticizer.....	6
Toluol.....	27
Ethyl acetate.....	33
Denatured alcohol.....	10

The solution is applied to the paper or foil by spreading or spraying and will dry at normal temperatures in about twenty minutes.

It is to be noted that the composition is devoid of oxidizing oils which would tend to make the varnish or coating brittle. However, it is possible to combine with the synthetic resin the semi-oxidizing or non-oxidizing oils to make a suitable composition, and, therefore, I do not intend to exclude the use of oils of this character either in combination with the other ingredients or as a substitute for one or more of the ingredients mentioned above.

Instead of allowing the adhesive coating to assume a firm and plastic condition without positive heating and drying, I apply the solution to the paper or foil at a temperature of about 200° F. and dry the coating at substantially the same temperature. This drying is accomplished in from one to two minutes at 200° F. and effects a considerable saving in time period of operation. It is advisable to keep drying temperature below 250° even though time of drying is short. The drying cycles will naturally vary with the degree of air change, and the tendency is to shorten time of drying. There is formed a permanently plastic coextensive coating or layer, as shown in Figures 4 and 5, whereby spots of the structure shown in Figures 6 and 8 may be readily punched therefrom. The adhesive is applied to the cushion liner by the usual spotting machine and is heat-sensitive, whereby it is rendered fusible by the heating instrumentality of the spotting machine and immediately pressed into bonded relation with the exposed surface of the cushion liner. Thereupon, the adhesive assumes a firm and permanently plastic condition, whence it is compensatory for any physical changes which occur in the cushion liner and is neither broken nor strained, nor is its continuous, impermeable character disrupted by the expansion or contraction of the liner, so that the spot and liner are permanently connected throughout the area of their respective contact surfaces by a continuous protective barrier.

In view of this permanently plastic and firm connection between the facing and the liner disc, the caps may be manufactured and stored without fear of the spots loosening and may be applied to containers, particularly those of the pressure beverage type with assurance that the spot will not separate from the liner to either

weaken the seal or permit the contents to contact with the liner material.

I have discovered that by employing an adhesive of the character set forth, it is unnecessary to pre-size or treat the surface of the metal foil before applying the adhesive. Moreover, the adhesive stratum does not tend to swell when subjected to moisture and does not lose its adhesive properties throughout pasteurizing temperatures which may run as high as 185° F. Further, I have discovered that a stratum of this character has an adhesive affinity for metal foil, particularly, and also for other facings to substantially the same extent as for cork. This affinity becomes evident after extended use of a cap of this character. It is observed that there is virtually no tendency for the metal foil center to fall from or to readily separate from the cushion layer. Upon forced separation of the facing and cushion layer, a very large portion of the adhesive stratum adheres to the center spot facing and substantially to the same extent as to the cork.

Moreover, I have discovered a very unusual property, namely, that the mechanical pressure to which the facing and adhesive are subjected while the cap is positioned on the bottle improves or enhances the adherence of the center spot facing to the cork disc. In other words, actual tests have shown that, although center spot caps containing a gutta percha stratum deteriorate from the date of manufacture, particularly after being applied to a bottle, so far as adhesion of the center spot to the cushion disc are concerned, the caps of my application actually improve and when examined after a period of use the spots are more firmly united to the cushion disc than when the caps are first manufactured. This continued improvement in the adhesion has been observed throughout periods of over a year and is a vital characteristic of this invention.

I claim:

1. In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a cellulose derivative adhesive.

2. In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a cellulose derivative adhesive and a modifying agent enhancing the adhesive characteristics of said derivative.

3. In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a nitro-cellulose adhesive base.

4. In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a nitro-cellulose adhesive base and a modifying agent enhancing the adhesive properties of the nitro-cellulose.

5. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil of less diameter than the cushion liner posi-

tioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a cellulose derivative adhesive.

5 6. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner
10 and uniting the two, said stratum comprising a cellulose derivative adhesive and a modifying agent enhancing the adhesive characteristics of said derivative.

7. In a cap which includes a metal shell, a
15 cushion liner of cork, a center facing of metal foil of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a
20 nitro-cellulose adhesive base.

8. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible
25 adhesive interposed between the facing and liner and uniting the two, said stratum comprising a nitro-cellulose adhesive base and a modifying agent enhancing the adhesive properties of the nitro-cellulose.

9. In a cap which includes a metal shell, a
30 cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and cushion liner and uniting the two, said stratum comprising a cellulose derivative adhesive and a resin.

10. In a cap which includes a metal shell, a
35 cushion liner of cork, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and cork cushion and
40 uniting the two, said stratum comprising a cellulose derivative adhesive and a resin.

uniting the two, said stratum comprising a cellulose derivative adhesive and a resin.

11. In a cap which includes a metal shell, a cushion liner, a center facing of metal foil, and a stratum of heat-fusible adhesive interposed between the facing and cushion liner and uniting the two, said stratum comprising a cellulose derivative adhesive and a resin.

12. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil, and a stratum of heat-fusible adhesive interposed between the facing and cork cushion and uniting the two, said stratum comprising a cellulose derivative adhesive and a resin.

13. In a cap which includes a metal shell, a cushion liner, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and cushion liner and uniting the two, said stratum comprising a nitro-cellulose adhesive and a resin.

14. In a cap which includes a metal shell, a cushion liner of cork, a center facing of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and cork cushion and uniting the two, said stratum comprising a nitro-cellulose adhesive and a resin.

15. In a cap which includes a metal shell, a cushion liner, a center facing of metal foil, and a stratum of heat-fusible adhesive interposed between the facing and cushion liner and uniting the two, said stratum comprising a nitro-cellulose adhesive and a resin.

16. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil, and a stratum of heat-fusible adhesive interposed between the facing and cork cushion and uniting the two, said stratum comprising a nitro-cellulose adhesive and a resin.

ALBIN H. WARTH.

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[fol. 729]

PLAINTIFF'S EXHIBIT No. 2

April Two, 1934.

Ferdinand Gutmann & Co., Bush Terminal Building No. 19,
39th Street & Second Avenue, Brooklyn, N. Y.

GENTLEMEN:

On behalf of our client, Crown Cork & Seal Company, Inc., we hereby notify you that you are infringing the following patents which it owns:

1,339,066, McManus, May 4, 1920;
Re. 19,117, Warth, March 20, 1934;
1,899,782, Warth, Feb. 28, 1933;
1,899,783, Warth, Feb. 28, 1933;
1,899,744, Warth, Feb. 28, 1933.

The said reissue patent was formerly patent 1,788,260, dated Jan. 6, 1931, and infringement of the same prior to the grant of the reissue is also charged.

You are hereby requested to desist at once from further infringement and to render an accounting for your past infringement. We have been instructed by our client to take steps to enforce its rights under the aforesaid patents in the absence of a statement from you that you will promptly comply with the foregoing requests.

Yours very truly, — — —

JJD:U.

[fol. 730]

April Twenty-six, 1934.

Reg. Mail.

Ferdinand Gutmann & Co., Bush Terminal Building No.
19, 39th Street & Second Avenue, Brooklyn, N. Y.

GENTLEMEN:

On behalf of our client, Crown Cork & Seal Company, Inc., we hereby notify you that you are infringing the patent to Warth, No. 1,956,481, granted April 24, 1934, which it owns.

You are hereby requested to desist at once from further infringement and to render an accounting for your past infringement. We have been instructed by our client to

take steps to enforce its rights under the aforesaid patent in the absence of a statement from you that you will promptly comply with the foregoing requests.

Yours very truly, — —.

MCL:L.

[fol. 731]

July Eighteen, 1934.

Registered Mail.

Return Receipt Requested.

Ferdinand Gutmann & Co., Bush Terminal Building No. 19, 39th Street & Second Avenue, Brooklyn, N. Y.

GENTLEMEN:

On behalf of our client, Crown Cork & Seal Company, Inc., we hereby notify you that you are infringing the patent to Warth, No. 1,967,195, granted July 17, 1934, which it owns. A copy of the patent is enclosed.

You are hereby requested to desist at once from further infringement and to render an accounting for your past infringement. We have been instructed by our client to take steps to enforce its rights under the aforesaid patent in the absence of a statement from you that you will promptly comply with the foregoing requests.

Yours very truly, — —.

JJD:W.

[fol. 732]

PLAINTIFF'S EXHIBIT No. 3.

United States District Court, Eastern District of New York

In Equity. No. 7371

CROWN CORK & SEAL Co., INC., Plaintiff,

vs.

FERDINAND GUTMANN & Co., Defendant

Stipulation

Defendant stipulates that the crown caps supplied to plaintiff by defendant and marked with the letters A-F by defendant's counsel are typical of the crown caps having a natural cork pad and a composition cork pad made and

sold by defendant subsequent to the issue of the patents in suit, before the filing of the bill of complaint herein in which the kind of pad, center spot and adhesive are as follows:

- A. Natural Cork Tin Foil 4620
- B. Composition Cork Aluminum Foil 4620
- C. Natural Cork Varnished Paper Gutta Percha
- D. Composition Cork Varnished Paper Gutta Percha
- E. Natural Cork Tin Foil Spot (Flange set in cork)
- F. Natural Cork Tin Foil Gutta Percha

That the sample strips furnished to plaintiff by defendant and marked with the letters G to J inclusive, are illustrative of the center spot material used by defendant in the manufacture of center spot crowns prior to the filing of [fol. 733] the bill of complaint herein; that strip G is tin foil coated with gutta percha; that strip H is aluminum foil coated with gutta percha; that strip I is aluminum foil coated with 4620; that strip J is varnished kraft paper coated with gutta percha.

It is also stipulated by defendant that in making the caps referred to in this stipulation, the sample strips I and J were employed in the method set forth in the Cohn patent #1,921,808, within six years preceding the filing of the bill; that defendant also made corresponding caps using strip material G and H prior to the filing of the bill, by the machine and method disclosed in the Johnson patent #1,852,578.

It is also stipulated that nothing contained in this stipulation shall prevent defendant from showing that it made center spot caps from strip material G and H six years and more prior to the filing of the bill.

It is also stipulated that plaintiff is the owner of all the right, title and interest in and to each of the five patents to Warth, and assigned to the plaintiff and that defendant is the owner of the right, title and interest in and to the patent to Cohn 1,921,808 here in suit, but it is understood that this stipulation shall in no way prejudice defendant's right to show that Warth is not the original and first inventor of some of the patents in suit, as alleged in defendant's answer.

It is stipulated that plaintiff is a corporation of the State of New York and a citizen of said State as alleged in the bill of complaint.

It is stipulated and agreed that uncertified copies of Letters Patent, both United States and foreign, may be used with the same force and effect as certified copies thereof, [fol. 734] subject to correction if error should appear, but such patents shall not be taken as proof of the contents of the applications therefor as filed.

It is further stipulated that the attached translations of French patents #463,971 and 415,794 are correct translations of said patents.

Gifford, Scull & Burgess, Solicitors for Plaintiff.
Hauff & Warland, Solicitors for Defendant.

April 30, 1935.

French Republic

National Office of Industrial Property

Patent of Invention No. 463,971

XX.—Novelties and various industries.

4.—Articles of travel and of camping, wrappings, receptacles and accessories.

System of stoppering bottles

Societe: Montaner & Co., residing in Germany.

Application filed October 24, 1913

Issued December 31, 1913—Published March 10, 1914

The invention consists in a system of stoppering bottles which presents certain advantages over known stoppering devices. The latter often comprise a plug of compressed cork which is enclosed in a sheet of tin. In this case the [fol. 735] smooth surface rests on the smooth edge of the neck of the bottle. But it is then not possible to obtain a tight closure of the bottle, because the liquids which contain carbonic acid and which, as known, when heated produce strong pressure, adversely affect the tightness.

By means of this novel stoppering of bottles it is possible to obtain an absolutely certain tightness, and to this end the stoppering is effected in a manner such that the plug which makes the joint and is composed of cork or other substance, covers only the center by a small disk of sheet tin or other appropriate material which is stamped or glued. The metal cap which surrounds the entire tightening plug is placed upon the exterior bead at the upper end of the bottle.

This new stoppering is illustrated in plan view and in section in Figs. 1 and 2.

a is the plug of cork or other material, b is the sheet of tin stamped or pasted, in this arrangement the mass of cork is somewhat compressed into the sheet of tin in a manner to form a reenforcement c of the tightening plug.

The metal cap d which is placed below maintains the whole by its depressed edge e in a known manner on the neck of the bottle.

In this manner there is obtained a secure stopperage of the bottle and the cork does not come into contact with the contents thereof. The liquid is in no manner rendered cloudy and all absorption thereof, by reason of contact with the cork, is thus avoided.

Resume.

This invention relates to:

A system of stoppering bottles composed of a plug of [fol. 736] cork and of a metal cap placed thereabove, characterized by the fact that the non-covered edge of the plug of cork or other material renders the edge of the neck of the bottle tight, while a sheet of tin or other material stamped or pasted to the center of the plug, prevents all contact of the liquid with the plug of cork.

Societe Montaner & Co., by Attorney Armengaud
Jeune.

W. E. W.

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(Here follows 1 drawing, side folio 737)

570A

737

N° 463.971

Société Montaner & C°

PL unique

Fig. 1.

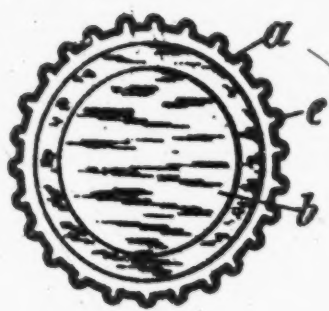
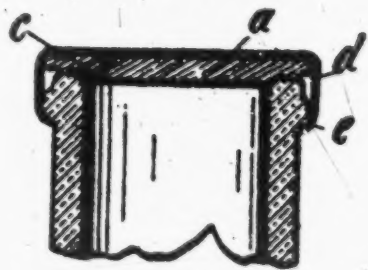


Fig. 2.



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[fols. 738-739] National Office of Industrial Property

Patent of Invention No. 415,794

XX.—Novelties and various industries.

4.—Articles of travel and of camping, wrappings, receptacles and accessories.

Capsules for closing bottles.

Societe: American Cork and Seal Company residing in the United States of America.

Application Filed May 11, 1910

Issued July 22, 1910—Published October 4, 1910.

The present invention relates to capsules for bottles. It has for its object a cap designed to be fixed on a bottle and having at the interior thereof a ring of rubber and a stepped protective disk engaging a portion of the packing ring, in such manner that the contents of the bottle cannot enter into contact with the rubber. The disk has its center fixed to the cap so that the portion thereof which covers a portion of the rubber packing maintains this packing in place; on the other hand the stepped portion of the disk is proportioned in dimensions in such manner that when it is secured on a bottle with the lip of the bottle fitted in the packing, the vertical portion of the disk carries a part of the disk into the mouth of the bottle to form a protective side which contributes to maintaining the contents of the [fol. 740] bottle out of contact with the rubber packing.

In the accompanying drawings:

Fig. 1 is a central vertical section of a capsule for bottles constructed in accordance with the invention; Fig. 2 is a plan of the cap seen from below; Fig. 3 is a central vertical section of the cap applied on a bottle.

4 denotes the cap having a puckered wall 5 by means of which it may be secured on a bottle at 6. It is nevertheless not essential to use a cap with a puckered wall inasmuch as the manner in which the cap is secured on a bottle is not an essential part of the invention.

Within the interior of the cap 4 is mounted a rubber packing ring 7 and a stepped protective disk 8 having an approximately flat center 9, a vertical annular part 10 and

an edge 11 which covers the portion of the ring 7; the disk 8 is secured on the cap 4 by a layer of adhesive substance 12. The disk may be made of aluminum, of tin, or of any other material sufficiently rigid to maintain the packing in place when the disk is fixed on the cap, and it prevents the contents of the bottle from entering into contact with the rubber packing. The vertical annular portion 10 of the disk is of smaller diameter than the mouth 13 of the bottle 6, so that when it is applied to this mouth the lip 14 of the bottle engages the packing, carrying with it the exterior part of the edge 11 and forming within the neck a side 15 which enters into intimate contact with the bottle and effectively separates the contents from the packing. The material forming the disk must be sufficiently flexible so that the lip of the bottle easily engages into the [fol. 741] packing, but sufficiently rigid so that the annular part 10 has adequate rigidity to form the side 15. Any desired material may be used to secure the disk on the cap, e. g., glue, cement, solder, or any other material having the required adhesive properties.

Resume

1. A cap for bottles, comprising a cap, a rubber packing ring, and a stepped protective disk having its center fixed to the cap, and a flanged part covering a part of the packing;

2. A cap for bottles, comprising a cap, a rubber packing ring, and a protective disk fixed on the cap and covering a part of the packing; the disk having an annular vertical portion of a smaller diameter than the mouth of the bottle to be closed so that a part of the disk is carried to the interior of the mouth to form a side.

Societe: American Cork and Seal Company, by Attorney Matray Bros. & Co.

W. E. W.

(Here follows 1 drawing, side folio 742.)

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N° 415.794

Société :
American Cork and Seal Company

Pl. unique

Fig. 1.

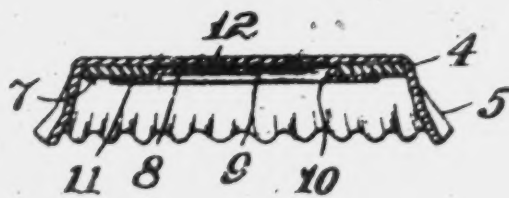


Fig. 2.

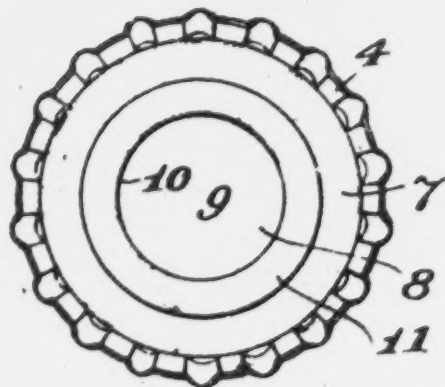
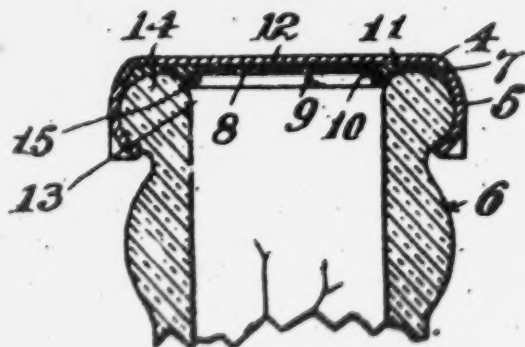


Fig. 3.



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[fol. 743] PLAINTIFF'S EXHIBIT No. 13

UNITED STATES DISTRICT COURT, EASTERN DISTRICT OF NEW
YORK

In Equity. -No. 7371

CROWN CORK & SEAL COMPANY, INC., Plaintiff,

vs.

FERDINAND GUTMANN & Co., Defendant

Certain Interrogatories Directed to Defendant

Interrogatories dated December 11, 1934, and answers thereto dated December 20, 1934.

Interrogatory 3. With respect to plaintiff's charge of infringement of the Warth patent 1,956,481, April 24, 1934, and defendant's allegations as to its process in Paragraph Fourth (p. 15) of the answer:

(a) State the ingredients (and proportions thereof) of the adhesive employed on the metal foil and paper strips for uniting "center spots" punched from said strips to the cork disc in crown caps in defendant's practice of the method described in the Cohn patent 1,921,808, as alleged in Paragraph Fourth (p. 15) of the answer.

Answer. The defendant, in making its center spot caps, by the method described in the Cohn Patent #1,921,808, uses adhesive purchased on the open market. Defendant does not know the ingredients or composition of said adhesive, but is informed and believes that said adhesive, is [fol. 744] manufactured by the Du Pont Co., under Patent to Maurice V. Hitt, No. 1,710,453 dated April 23, 1929.

Interrogatory 4. With respect to plaintiff's charge of infringement of the Warth patent Reissue 19,117, March 20, 1934, and Warth patent 1,967,195, July 17, 1934, and defendant's allegations with reference to its process contained in Paragraph Fourth (pages 9 and 15) of the answer:

(a) State when defendant began to use the process described in the Cohn patent No. 1,921,808, August 8, 1933.

Answer to (a). The process described in the Cohn patent was used by defendant about March, 1932.

(b) State whether the process employed by defendant for manufacturing center spot crown caps prior to the date alleged in answer to paragraph 4 (a) above, was the process

described in the patent to Johnson, No. 1,852,578, dated April 5, 1932, and, if so, state whether the process described in said patent to Johnson was employed by defendant subsequent to January 6, 1931, in the manufacture of crown caps having center spot facings of paper and/or metal foil.

Answer to (b) Defendant purchased from Johnson in 1928 (as set forth on p. 14 of defendant's answer) certain machines and used the machines described in said Johnson patent until about March 1932, when the machines were modified to carry out the method set forth in Cohn Patent #1,921,808.

(c) If the answer to the first part of paragraph 4 (b) is affirmative, state the ingredients (and proportions thereof) [fol. 745] in the adhesive or adhesives employed on the strip of metal foil or paper from which the center spots were punched in the practicing of the method described in said patent to Johnson.

Answer to (c) Defendant states that it does not know the ingredients or proportions of the adhesive as set forth previously in answer to interrogatory 3, but such machines were used both with a gutta percha adhesive and with the adhesive manufactured by the DuPont Company, as referred to in answer to interrogatory 3.

Interrogatories dated January 2, 1935, and answers thereto dated January 5, 1935.

Interrogatory 5. Referring to defendant's answer to Interrogatory 3 propounded by plaintiff in its interrogatories filed on or about December 10, 1934:

(a) What is the name or designation used by defendant in designating the adhesive referred to in said answer to interrogatory 3 when it purchases such adhesive on the open market?

Answer. Number 4620 thermo plastic cement.

(b) From whom does defendant purchase such adhesive and how is the adhesive designated by the seller?

Answer. The defendant purchases the adhesive from dealers who handle the product of E. I. DuPont de Nemours.

(c) What is the wording on the label of the container of such adhesive as purchased on the open market by defendant?

Answer. The wording on the label is the ordinary DuPont label for 4620 thermo plastic cement.

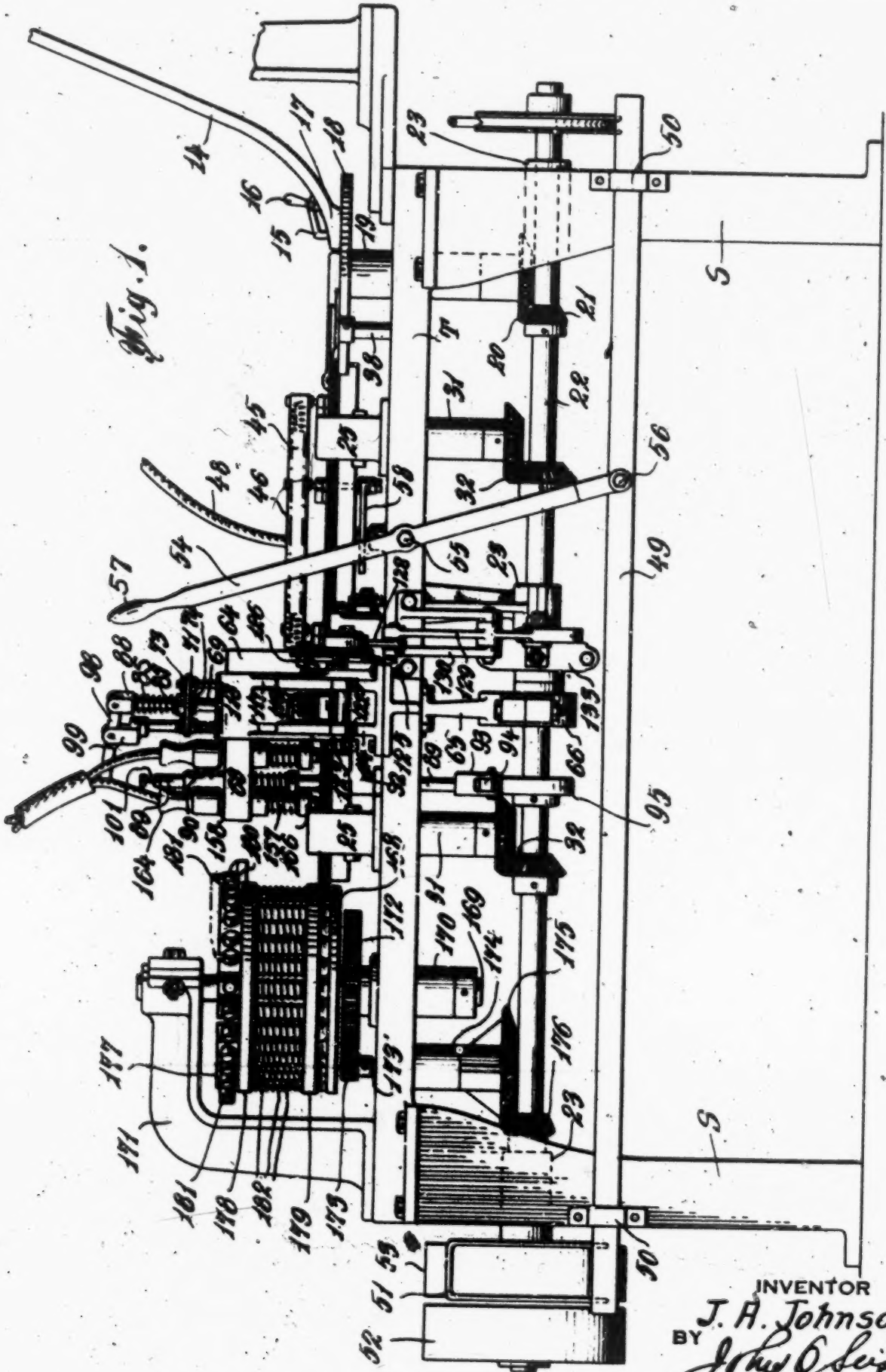
[fols. 746-766] PLAINTIFF'S EXHIBIT No. 14

575 April 5, 1932.

J. A. JOHNSON
METHOD AND APPARATUS FOR ASSEMBLING LININGS
IN RECEPTACLE CLOSURE CAPS
Filed Nov. 26, 1929 9 Sheets

1,852,578

9 Sheets-Sheet 1



INVENTOR
J. A. Johnson.
BY John O. Seifert
ATTORNEY

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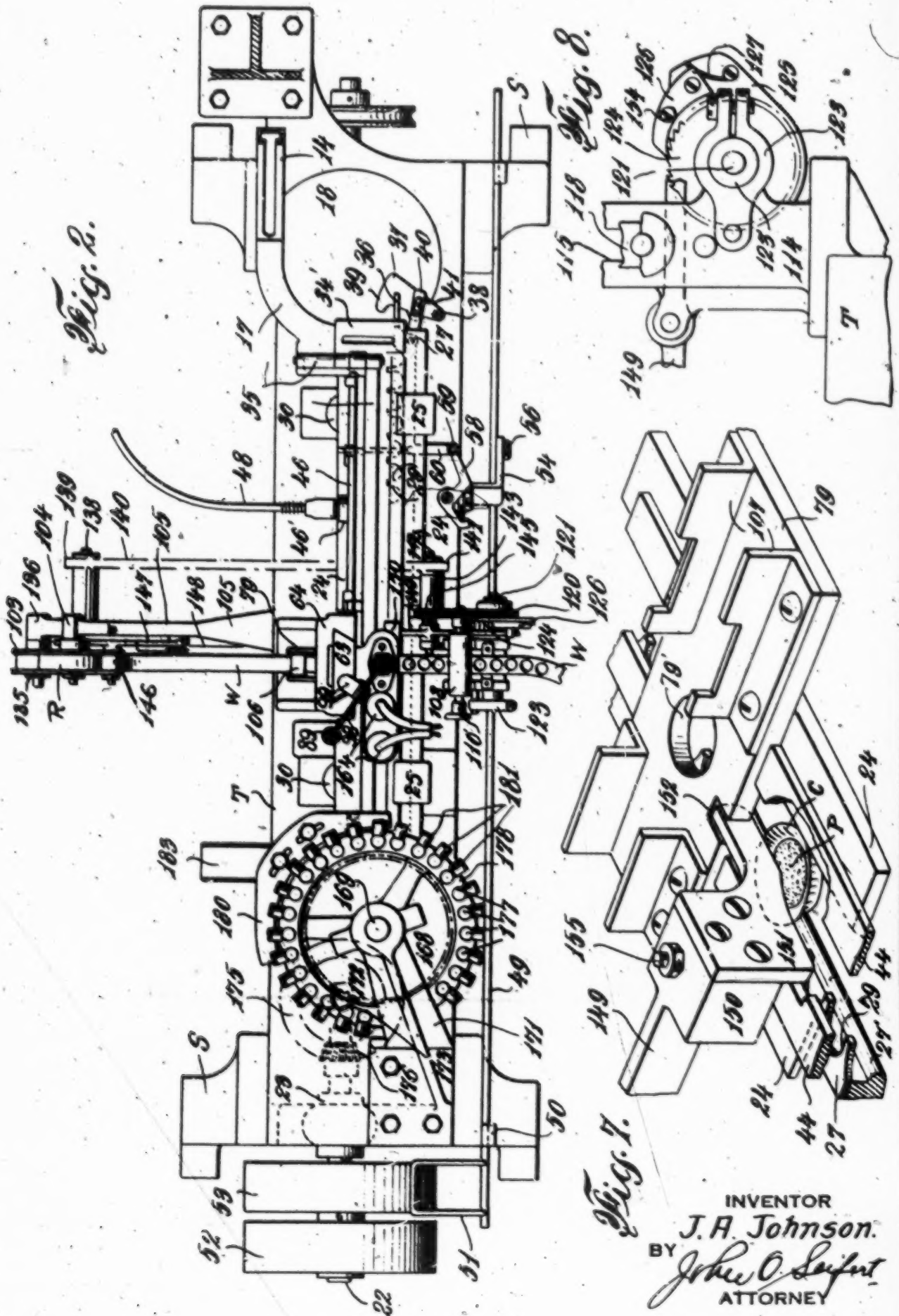
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April 5, 1932.

J. A. JOHNSON
METHOD AND APPARATUS FOR ASSEMBLING LININGS
IN RECEPTACLE CLOSURE CAPS
Filed Nov. 26, 1929

1,852,578

9 Sheets-Sheet 2



INVENTOR
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BY John O. Saynt
ATTORNEY

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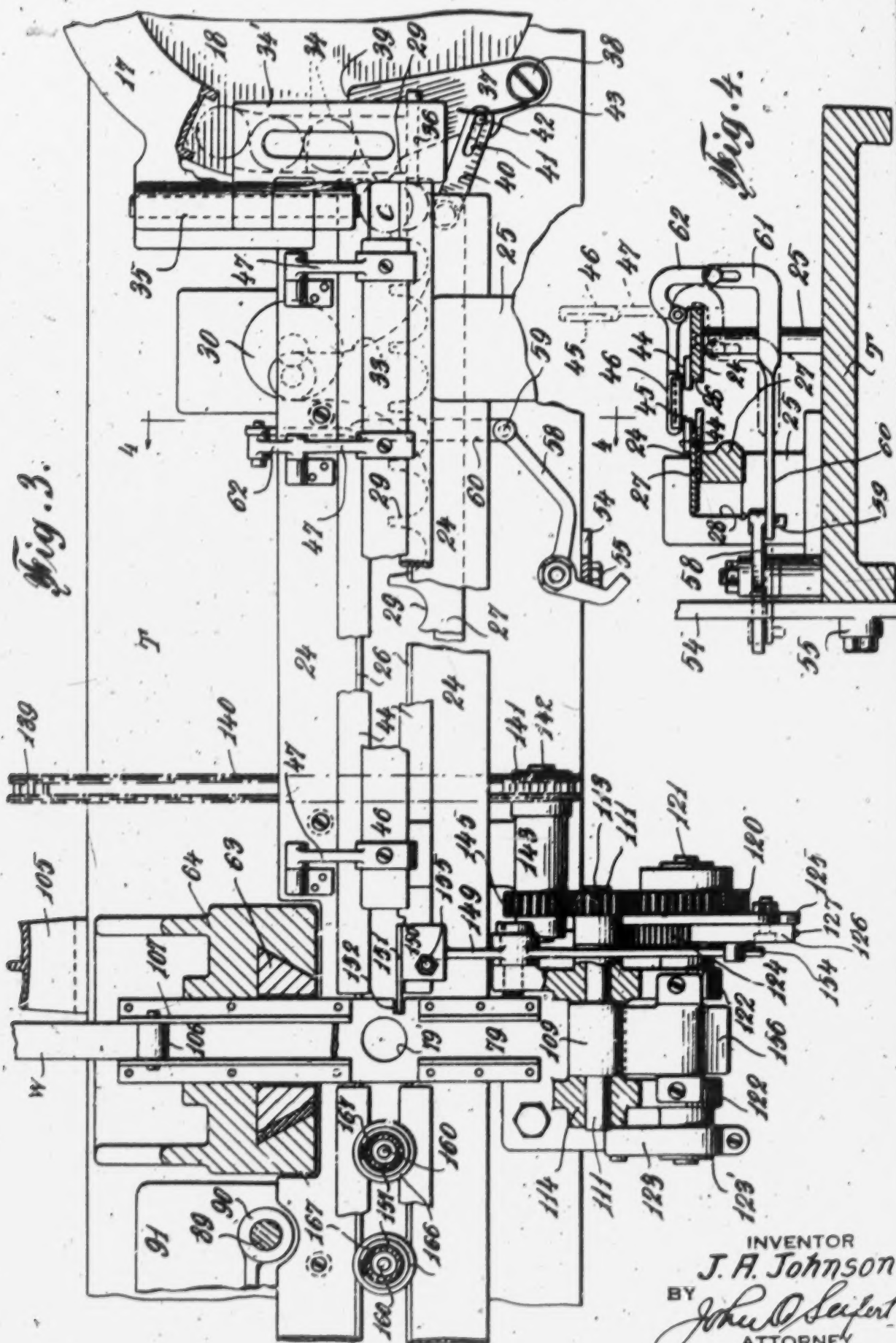
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April 5, 1932.

J. A. JOHNSON
METHOD AND APPARATUS FOR ASSEMBLING LININGS
IN RECEPTACLE CLOSURE CAPS
Filed Nov. 26, 1929

1,852,578

9 Sheets-Sheet 3



INVENTOR
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BY *John D. Seifert*
ATTORNEY

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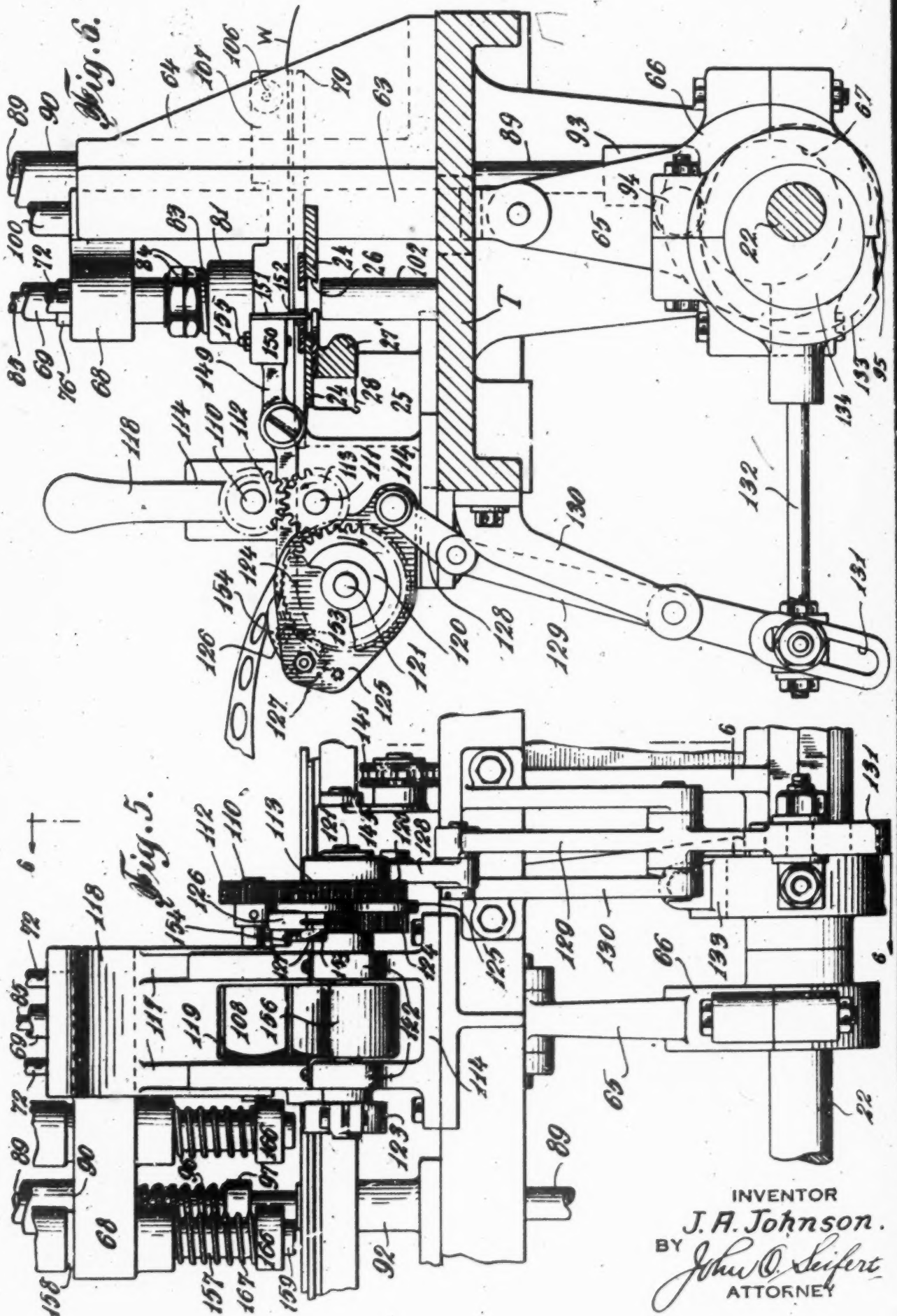
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April 5, 1932.

J. A. JOHNSON
METHOD AND APPARATUS FOR ASSEMBLING LININGS
IN RECEPTACLE CLOSURE CAPS
Filed Nov. 26, 1929 9 She

1,852,578

9 Sheets-Sheet 4



INVENTOR
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BY *John O. Seifert*
ATTORNEY

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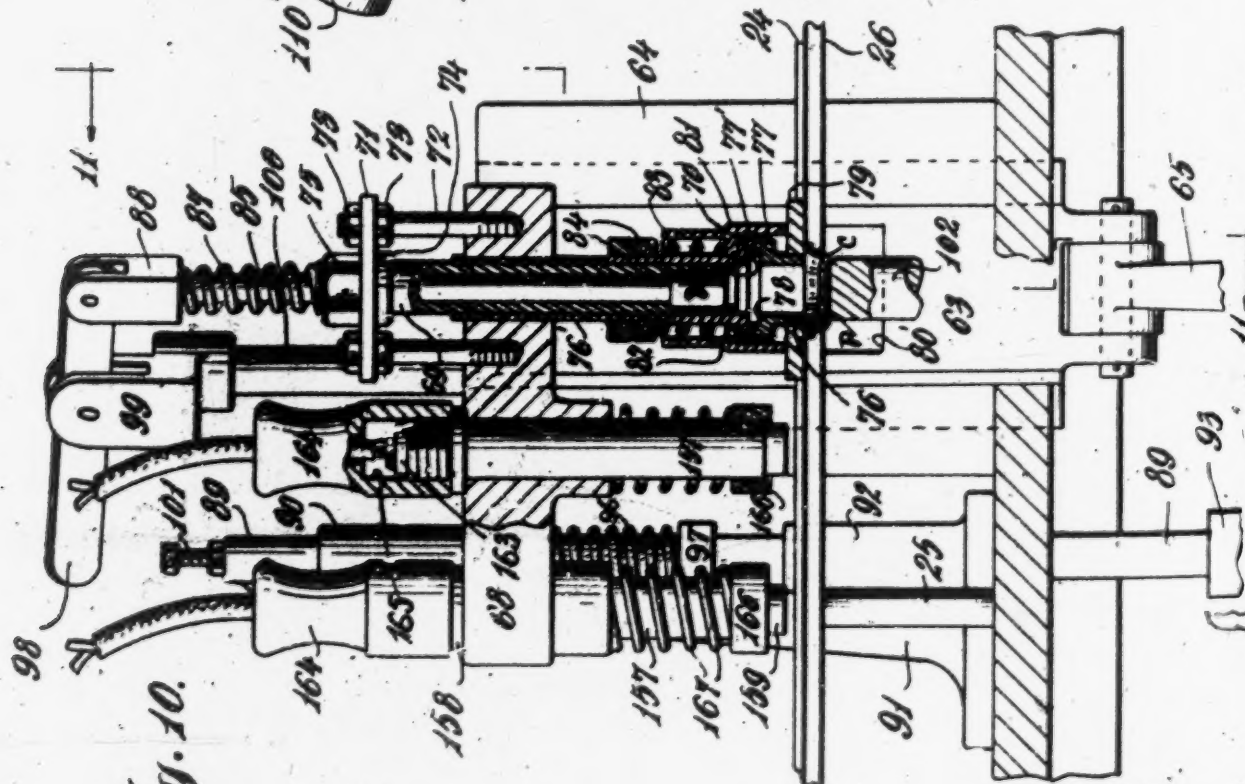
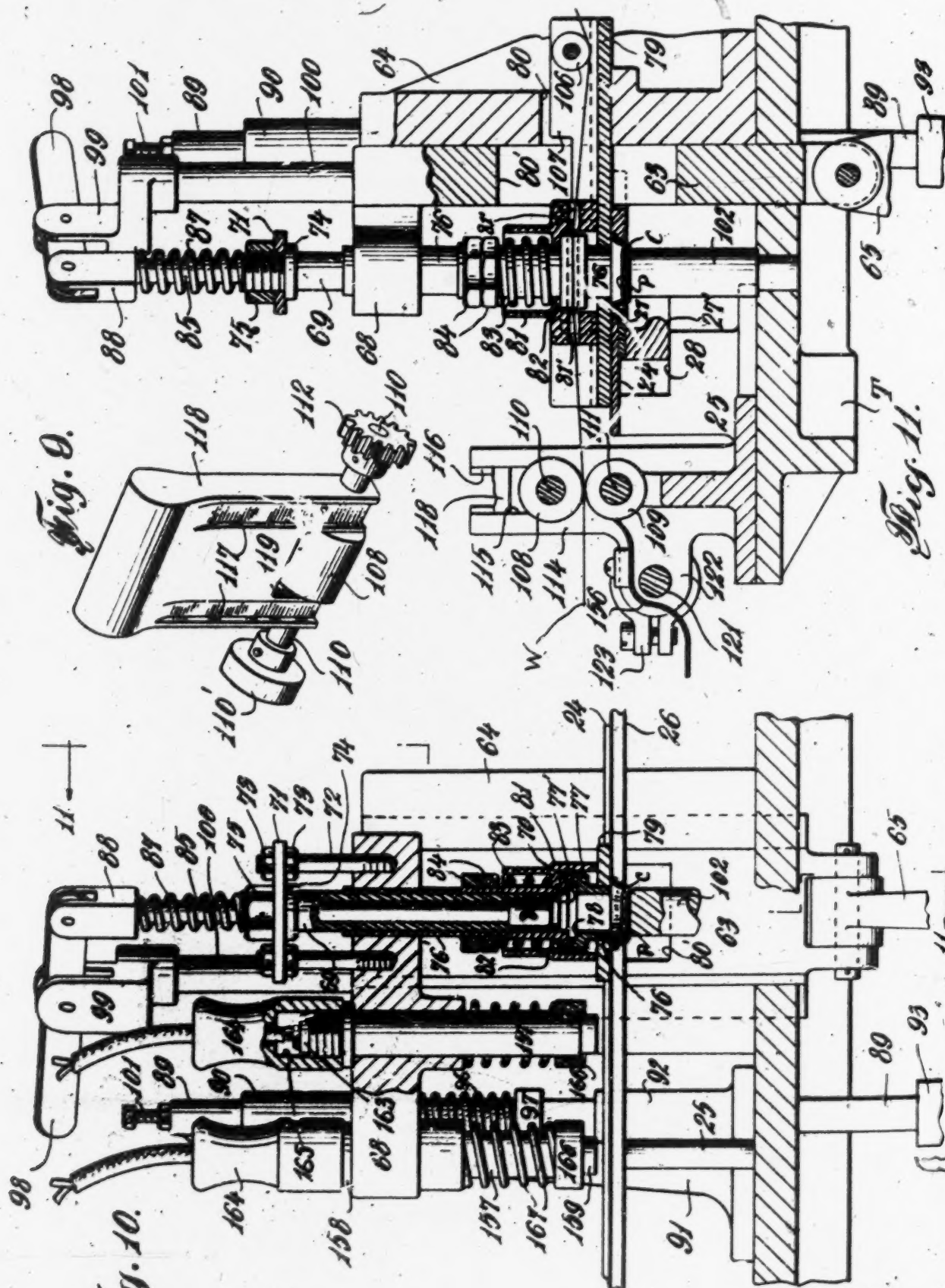
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April 5, 1932.

J. A. JOHNSON
METHOD AND APPARATUS FOR ASSEMBLING LININGS
IN RECEPTACLE CLOSURE CAPS
 Filed Nov. 26, 1929 9 She

1,852,578

9 Sheets-Sheet 5



INVENTOR
J. A. Johnson.
BY John C. Seibert
ATTORNEY

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April 5, 1932.

J. A. JOHNSON
METHOD AND APPARATUS FOR ASSEMBLING LININGS
IN RECEPTACLE CLOSURE CAPS
Filed Nov. 26, 1929

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Fig. 12.

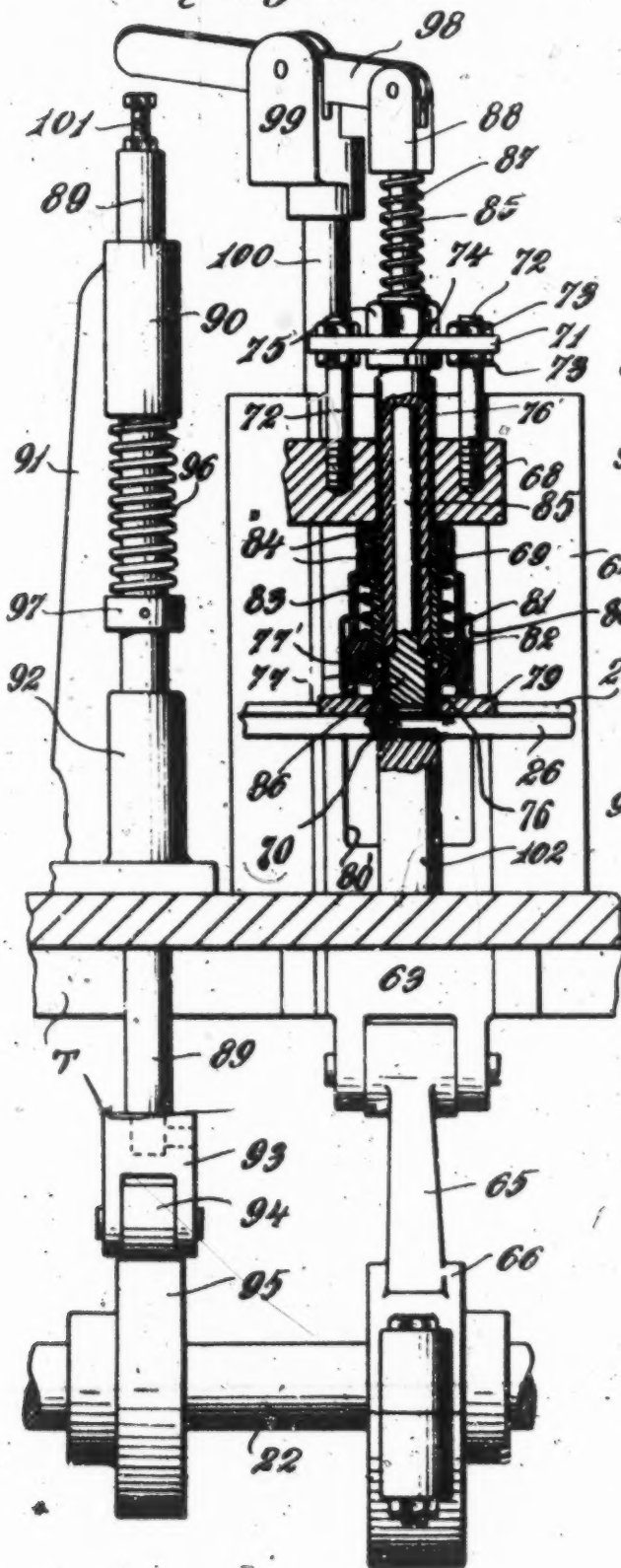
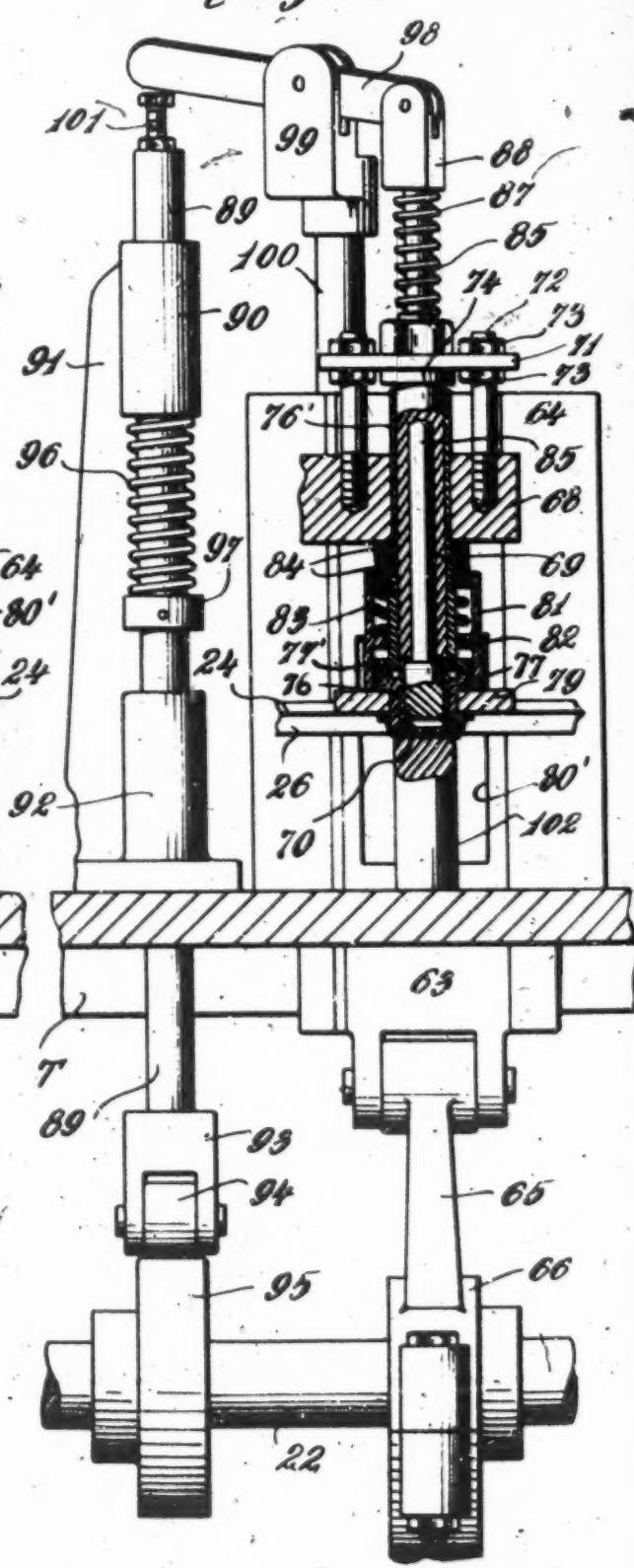


Fig. 13.



INVENTOR
J. A. Johnson.
BY *John O. Seifert*
ATTORNEY

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April 5, 1932.

J. A. JOHNSON
METHOD AND APPARATUS FOR ASSEMBLING LININGS
IN RECEPTACLE CLOSURE CAPS
Filed Nov. 26, 1929

1,852,578

9 Sheets-Sheet 7

Fig. 14.

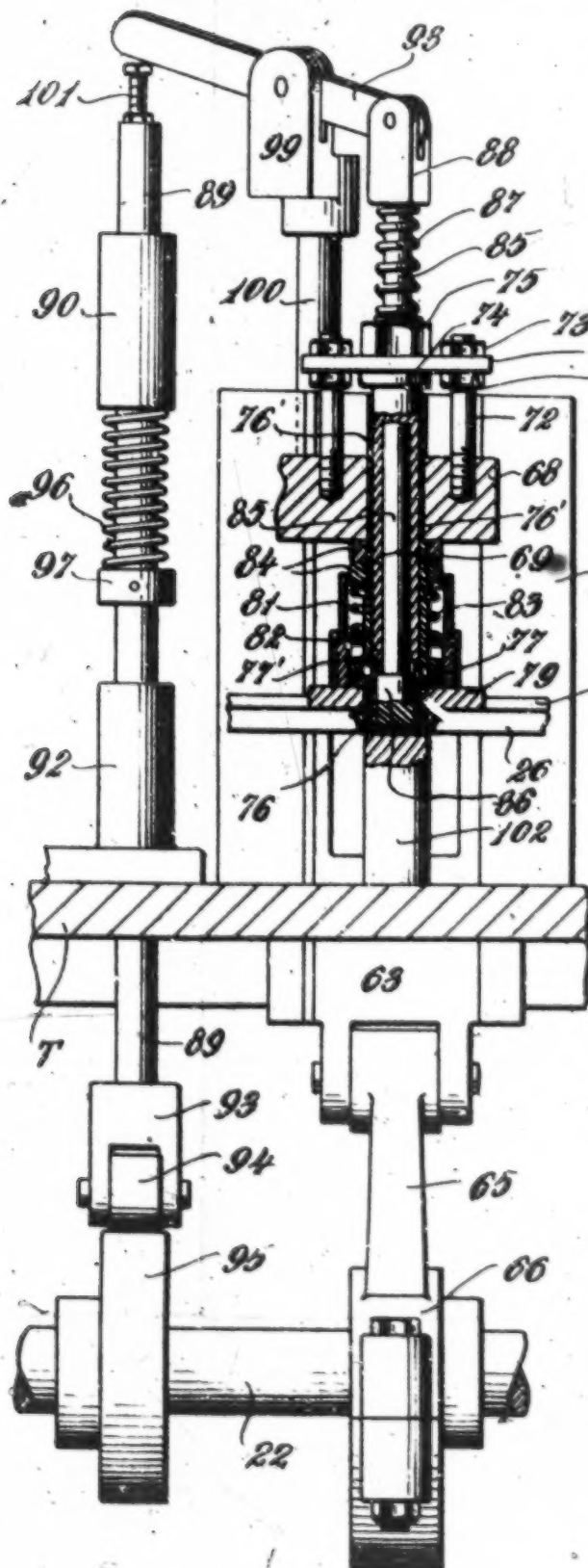
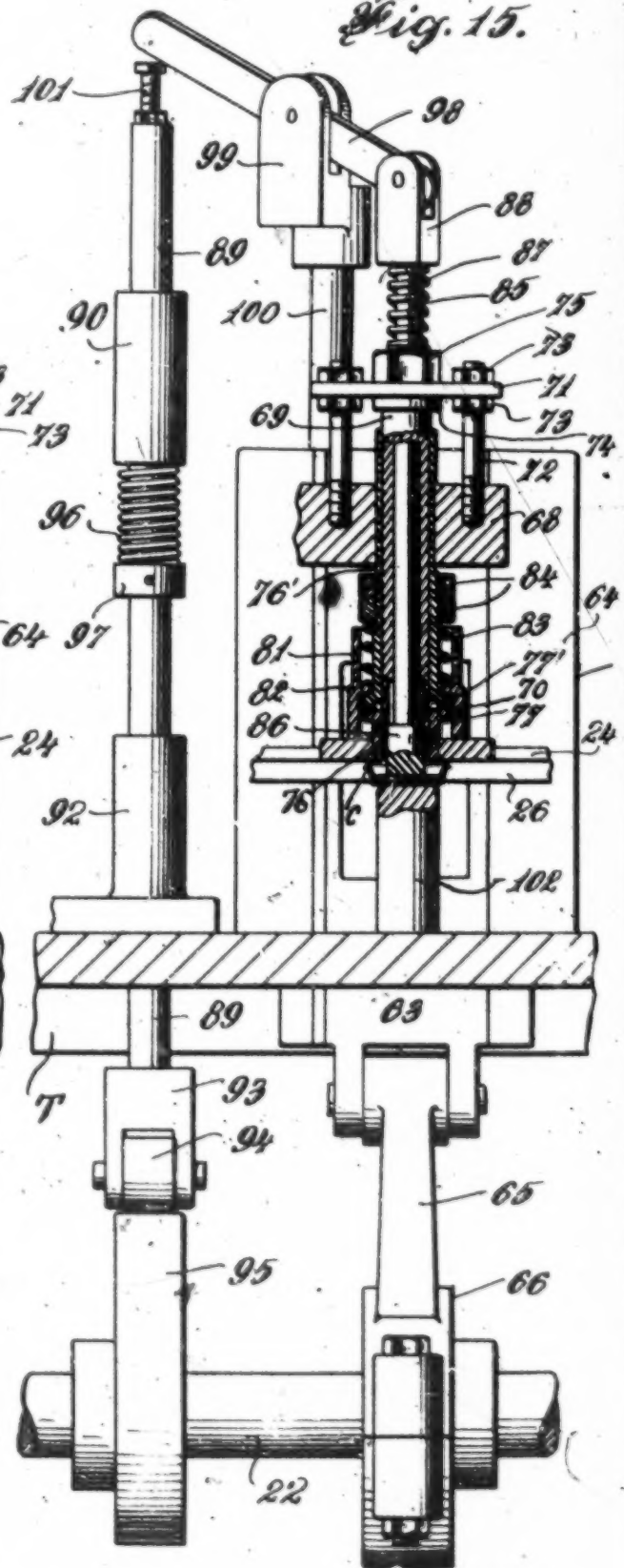


Fig. 15.



INVENTOR
J. A. Johnson.
BY John O. Seifert
ATTORNEY

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April 5, 1932.

J. A. JOHNSON
METHOD AND APPARATUS FOR ASSEMBLING LININGS
IN RECEPTACLE CLOSURE CAPS
Filed Nov. 26, 1929

1,852,578

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Fig. 16.

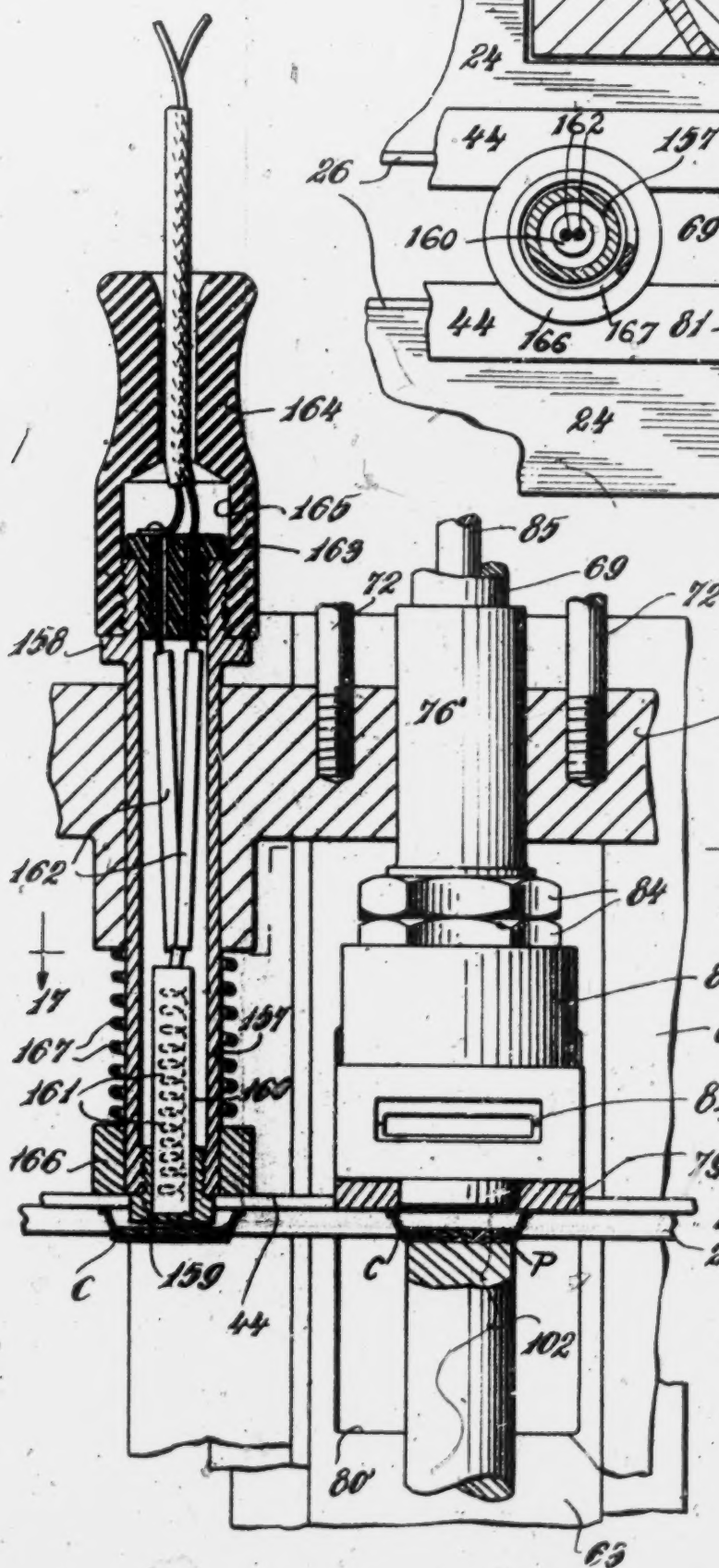


Fig. 17.

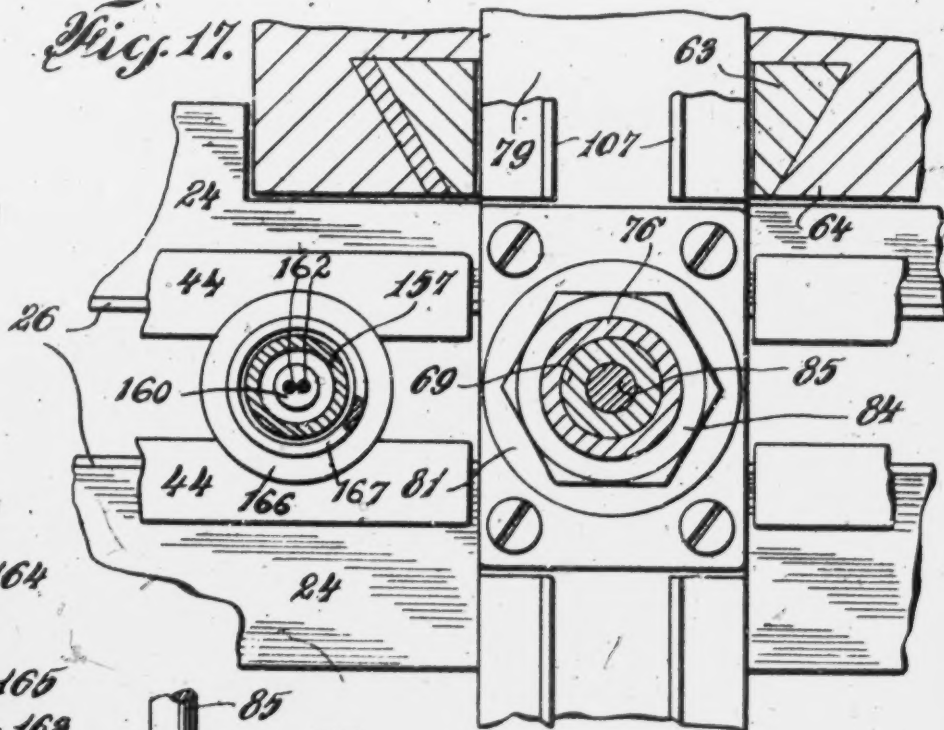
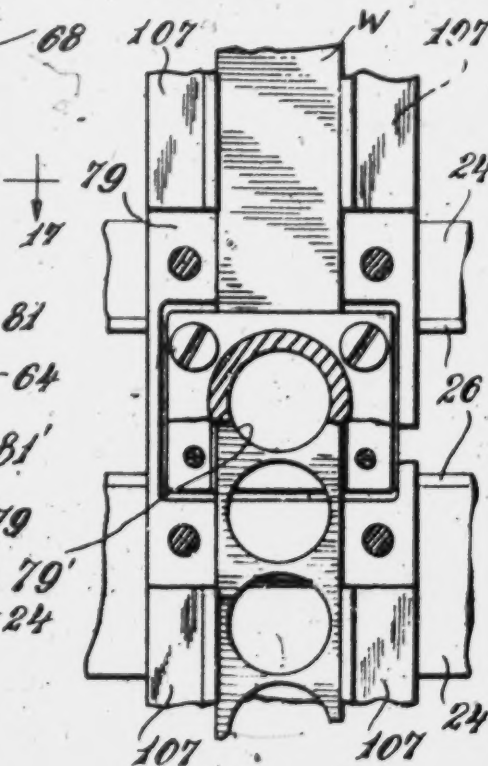


Fig. 18.



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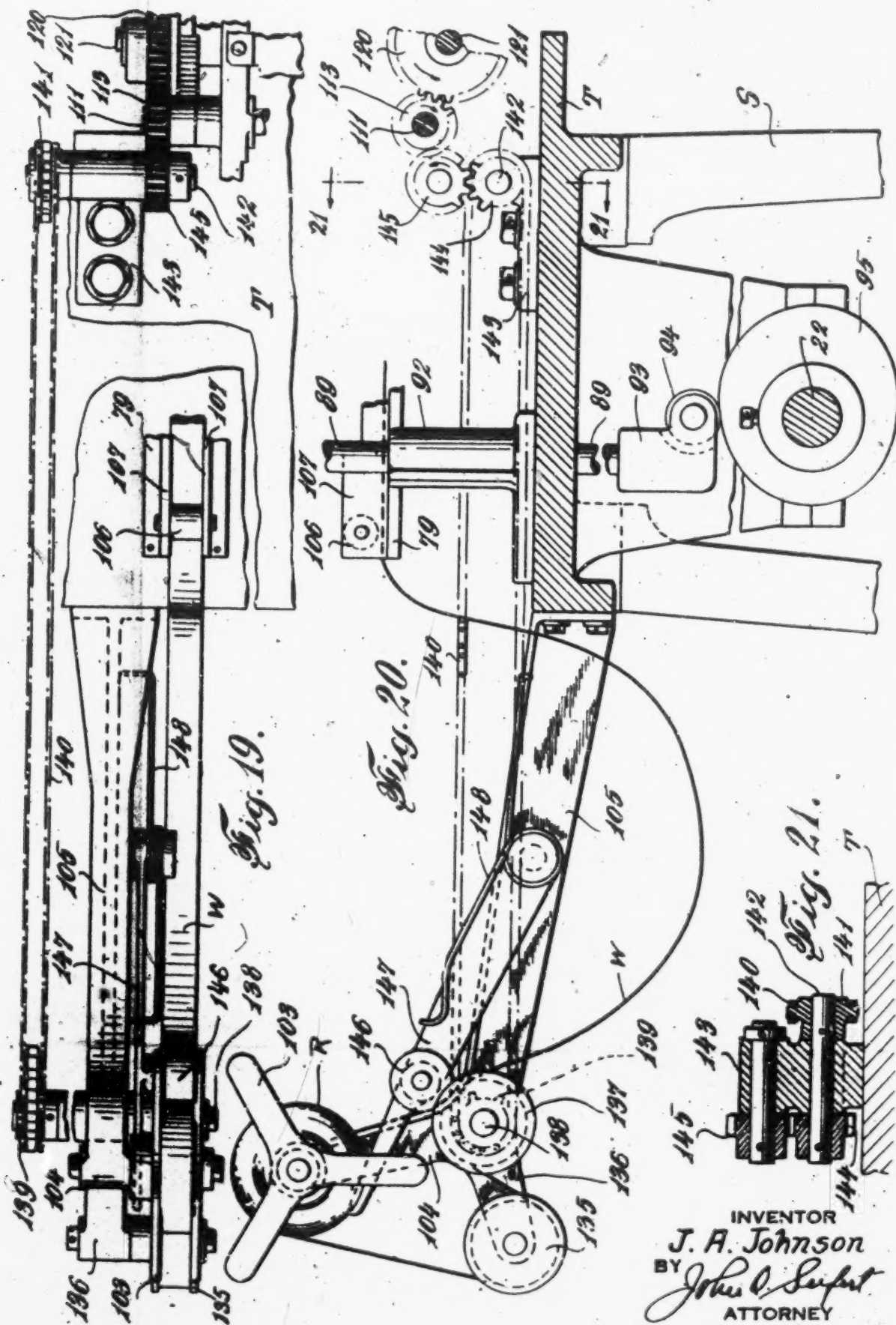
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April 5, 1932.

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METHOD AND APPARATUS FOR ASSEMBLING LININGS
IN RECEPTACLE CLOSURE CAPS
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Patented Apr. 5, 1932

UNITED STATES PATENT OFFICE

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METHOD AND APPARATUS FOR ASSEMBLING LININGS IN RECEPTACLE CLOSURE CAPS

Application filed November 26, 1929. Serial No. 408,793.

This invention relates to assembling and adhesively securing an impervious lining to sealing pads in closure caps of the type known as "crown caps" by the heating of sealing pads in the caps, the inserting of the linings having an adhesive surface normally non-viscous in the caps with the adhesive surface abutting the heated pads rendering the said adhesive surface of the linings viscous to adhere to the pads, subjecting the pads and linings to heat and pressure to assure an intimate adhesion between the linings and pads and subjecting the caps with the pads and linings to pressure during the cooling thereof, and it is the primary object of the invention to provide an improved method and apparatus for this purpose that are highly efficient in use.

By the method and apparatus now in use for this purpose the caps with the pads before the assembling of the linings therein are passed through a zone having an elevated temperature provided by a series of gas flames which scorch the pads with the result that the assembled caps are not acceptable by merchandisers or users of the caps, and it is another object of the invention to overcome this disadvantage by providing electric heating means to produce the elevated temperature zone, which means is adjustably mounted in superposed relation to the exposed surface of the cap pads and adapted to be moved from said position to a position away from the caps when the apparatus is inoperative and thus prevent scorching of the pads and a consequent destruction of the caps.

It is still another object of the invention to provide an improved and novel means to control the delivery of caps having sealing pads from a hopper to means to feed the caps to the means to assemble the lining on the pads.

It is a further object of the invention to provide improved means to positively feed a web of impervious material from a roll of such web to punch and die mechanism to sever linings from the web and said feeding means adapted to be rendered inoperative when there are no caps on the cap feeding means relative to the punch and die mechanism, and

to maintain a slack portion of the web between the roll of web and punch and die mechanism and thus prevent a sudden strain on and breaking of the web.

A further object of the invention is to provide means to guide the web of impervious material to punch and die mechanism and centrally position lining disks severed from the web relative to a pad in a closure cap.

Another object of the invention relates to means to place the impervious linings assembled on the pads in the caps under heat and pressure to render an intimate adhesion between the linings and pads.

The embodiment of the invention comprises a punch and die mechanism to which closure caps of the crown type having sealing pads therein are fed from a hopper by a slide depositing the caps with the pads exposed relative to a reciprocating member and delivered by said latter member to feed mechanism and intermittently fed by said mechanism along a support for the caps to the punch and die mechanism through a zone having an elevated temperature produced by an electric heating unit adjustably mounted superposed to the pads in the caps to heat the pads and adapted to be automatically moved to a position remotely of the caps when the apparatus is rendered inoperative. To provide and assemble impervious linings in the caps centrally of the pads a web of impervious material having an adhesive surface normally non-viscous is fed to the punch and die mechanism by means adapted to be rendered inoperative when no caps are positioned by the feed mechanism adjacent the punch and die mechanism. Lining disks are severed by the punch and die mechanism from the web and positioned by the punch in co-operation with a guide and support for the web centrally of and with the adhesive surface of the linings contiguous to the cap pads, the adhesive surface being rendered viscous through the heat of the pads. To effect an intimate adhesion between the linings and pads the caps with the pads and linings assembled therein are moved by the feed mechanism from the punch and die mechanism to means to place them under

heat and pressure comprising electrically heated plungers actuated in synchronism with the punch and die mechanism and impinging against the linings and pads in the caps. To insure the complete adhesion between the linings and pads before discharging the assembled caps from the apparatus the caps are delivered from the electrically heated plungers to means to maintain the linings and pads under pressure during the cooling thereof.

In the drawings accompanying and forming a part of this application, Figure 1 is a side elevation of apparatus illustrating an embodiment of the invention and shown with the parts in inoperative condition.

Figure 2 is a view of the apparatus looking at the top of Figure 1.

Figure 3 is a plan view of the right hand end portion of the apparatus on an enlarged scale and partly in section.

Figure 4 is a sectional view taken on line 4-4 of Figure 3 looking in the direction of the arrows.

Figure 5 is a fragmentary elevational view of the central portion of the apparatus showing the actuating mechanism for the web feeding means.

Figure 6 is a sectional view taken on the line 6-6 of Figure 5 looking in the direction of the arrows.

Figure 7 is a detail view in perspective of controlling means for the actuating mechanism of the web feeding means.

Figure 8 is an end view of a detail of the actuating mechanism of the web feeding means.

Figure 9 is a perspective view of a web impinging roller carrier of the web feeding means.

Figure 10 is an elevational view partly in section, of punch and die mechanism and electrically heated pressure plungers.

Figure 11 is a sectional view of the punch and die mechanism taken on line 11-11 of Figure 10 looking in the direction of the arrows.

Figure 12 is a sectional view on an enlarged scale of the punch and die mechanism in position after severing a lining disk from the web and means to actuate a plunger to strip the severed disk from the punch and impinge it against the pad in a cap.

Figure 13 is a view similar to Figure 12 of the punch and die mechanism showing the punch positioning a severed lining disk in a cap centrally of the cap pad and the plunger about to impinge the severed lining against the pad in a cap.

Figure 14 is a view similar to Figure 13 of the punch and die mechanism and showing the plunger impinging the severed lining against the pad in a cap.

Figure 15 is a view similar to Figure 14 showing the punch receding and the plunger

impinging the severed lining against the pad of a cap and stripping it from the punch.

Figure 16 is a sectional view of a heated plunger to place a lining and pad assembled in a cap under heat and pressure and showing the same in relation to a portion of the punch and die mechanism.

Figure 17 is a cross sectional view taken on the line 17-17 of Figure 16 looking in the direction of the arrows.

Figure 18 is a sectional plan view of means to guide the lining web relative to the punch and die mechanism.

Figure 19 is a plan view of a web roll and means to guide and feed the web from the roll to the punch and die mechanism.

Figure 20 is a side elevation looking at the bottom of Figure 19; and

Figure 21 is a sectional view taken on the line 21-21 of Figure 20 looking in the direction of the arrows, to show the connection between the means to feed the web to the punch and die mechanism with the means to feed the web from the web roll.

In the embodiment of the invention illustrated the operative parts are mounted upon a suitable framework comprising a table T supported upon standards S.

The caps C having sealing pads P usually of a cork composition adhesively secured therein, are delivered from a hopper (not shown) by a chute or slideway 14 arranged with flanged sides and top to prevent the caps from jamming or leaving the chute, and having a pivotally mounted gate 15 at the lowermost portion of the chute operated by a lever 16 to control the delivery of the caps from the chute, Figure 1. The caps are delivered from the chute to a tunnel-shaped guide member 17 extended from the end of the chute 14 in an arcuate direction, said guide being superposed and opened to the peripheral portion of a disk 18 rotatably supported by a sleeve 19 mounted on the table T to extend from the opposite faces thereof. The disk is rotated by a shaft rotatably carried by the sleeve 19 to extend from the ends of the sleeve with one end of the shaft fixed to the disk and having a pinion 20 fixed at the opposite end meshing with a pinion 21 fixed to a horizontal extending drive shaft 22 rotatably mounted in bearings 23 carried by the table T and standards S. The caps are moved from the outlet of the chute 14 along the member 17 by the rotation of the disk 18 to a position at the end thereof in alignment with a space between a pair of spaced rails 24 mounted above and parallelly of the table T by a series of supports 25 and having the opposite edges bevelled, as at 26, Figure 3, for the slidable support of the caps at opposite skirt portions to prevent the scratching or marring of the decorative surface thereof.

The caps are intermittently advanced or fed along the rails 24 by a feed rack embody-

ing a plate 27 carried by a slide 27' mounted in recesses 28 of the supports 25 for one of the cap supporting rails 24 (Figure 4) to have longitudinal and lateral movement. The plate is arranged with laterally extending fingers or projections forming spaced recesses 29 substantially of the size and shape of the caps to engage the caps laterally and feed the same along the rails 24 by a reciprocatory movement thereof consisting of four separate quadrant stages produced through the rotation of a pair of disks 30 (only one of which is shown at the right of Figure 3) carried by shafts rotatably mounted in sleeves 31 extending from both surfaces of the table T similar to the sleeve 19, the shafts having pinion driving connections 32 with the drive shaft 22. The feed rack 27 is pivotally connected to the disks 30 eccentrically of the axis of the disks by arms 33 extended laterally of said rack plate adjacent opposite ends. By the rotation of the disks movement is imparted to the rack laterally to engage the rack fingers between and into engagement with the caps on the rails 24, then in a direction longitudinally of said rails to feed caps along the rails, then laterally to move the rack fingers out of engagement with the caps, and then longitudinally in reverse direction to position the rack fingers between successive caps on the rails 24.

The caps, as they are moved by the disk 18 from the guide 17, are engaged between guide ledges 34 extended downward from the opposite longitudinal marginal portions of a plate 34' hingedly carried by the guide member 17, as at 35, in alinement with the delivery end thereof to extend over the disk at the entrance to the space between the cap supporting rails 24 and to permit lifting of said guide plate away from the disk 18 to remove caps which may become jammed therein, or for inspection, cleaning or otherwise. The one guide ledge 34 is cut away at the entrance to the cap supporting rails for the delivery of the caps laterally from the disk 18 to said rails.

The movement of the caps through the rotation of the disk 18 along the guide ledges 34 is arrested by a stop 36 in the form of a finger extended from the end of one of the rails 24 at a right angle to the guide plate 34' to the end of the outer guide ledge 34. The cap abutting the extended rail portion 36 is moved forward onto the bevelled edges 26 of the rails 24 by an ejector member 37 pivotally mounted at one end on a supporting stud 38 on the table T, to extend over disk 18 and have oscillatory movement between said disk and guide ledges 34 and the extended rail portion 36 to engage the cap by a projection extended laterally from the free end, the free end of said ejector being in an arc, as at 39, to engage the successive cap and maintain the caps in their respective positions in

the guide and chute during the delivery of the forward cap onto the rails 24. The ejector 37 is actuated by and in sequence with the movements of the feed rack through a link 40 pivotally connected at one end with the feed rack 27 and connected to the ejector member adjacent the mounting thereof by pin 42 fixed in and extending laterally from the ejector engaging a slot 41 in the link, the ejector being urged in a direction toward the guide 34' under the tension of a leaf spring 43 anchored on the ejector support and slidably engaging the pin 42 to assure the positive actuation of the ejector and to afford loose motion for the variations in the movements of the parts.

The longitudinal movement of the feed rack in a direction away from the disk 18 and the corresponding forward movement of the ejector 37 effected by the spring 43 will transfer the cap abutting the stop 36 onto the rails 24 into engagement with the end feeding finger of the rack slide 27, as shown in Figure 3. During the next two quadrant steps of the movement of the rack slide, the ejector 37 will be moved away from the guide 34' through the link connection thereof with the rack slide permitting the successive caps in the guide 17 to move by the force of the weight of the caps down the chute 14 and the rotation of the disk 18 positioning the foremost cap against the stop 36 opposite the ejector projection, the recess between the two fingers 29 at the end of the rack being positioned opposite the cap positioned by the ejector on the rails 24 and upon the successive movement of the feed rack towards the caps on the rails 24 positioning the end feed finger in the rear of such end cap on the cap supporting rail 24 and moving the rack fingers that were in front of caps to the rear of the respective caps on the rails 24. During the next step in the movement of the feed rack the caps on the rails are moved forward a distance equal to the width of the rack recesses, the cap in the forward recess being delivered from the rails and the foremost cap in the guide 34' transferred to the rails 24 by the ejector 37 in conjunction with the first slide projection as described.

To retain the caps on the rails 24 guide rails 44 are secured upon the tops of the rails 24 with the longitudinal marginal portion overhanging the beveled cap supporting edges of the rails, as shown in Figure 7.

To heat the pads P of the caps to render viscous an adhesive normally non-viscous, such as caoutchouc, carried either by said pads or the linings to be positioned on the pads, the caps are passed through a zone having an elevated temperature as they are moved along the rails 24 and produced by an electric heating unit 45 comprising an electric resistance wire embedded in a carrier having low electric conductivity and high

thermal conductivity material arranged within a receptacle 46 pivotally mounted by arms 47 on one of the rails 24 to adjustably position the unit in superposed relation to the space between the rails and the exposed pads, as shown in full lines in Figure 4, and in a position remotely of the caps on the rails, as shown in dot and dash lines in said Figure 4. The terminals of the resistance wire are electrically connected to contact terminals of a connection plug member mounted on the receptacle, as at 46', for connection with a source of electricity by electric conductors 48 through the usual plug connection.

To prevent scorching of the pads of the caps arrested below the heating unit due to the rendering of the apparatus inactive through the disconnecting of the apparatus from the source of power, in the present instance effected by shifting a belt (not shown) from a pulley 52 fixed to the drive shaft to a pulley 53 loose on said shaft, said belt shifter comprising a rod 49 slidably mounted in brackets 50 on standards S and carrying a yoke member 51 for the passage and embracing the opposite edges of the belt. The belt shifter is actuated by a lever 54 pivotally mounted intermediate the ends thereof on the side of the table T, as at 55, and is offset as shown in Figure 2, to allow for the variation in the relative positions of the belt shifter bar 49 and the side of the table T for pivotal connection of the lower end of the lever with the shifter bar, as at 56, the opposite end of the lever being arranged with a hand grip 57 for the manipulation of the lever. The manipulation of the lever 54 actuates the heating unit to different positions relative to the rails 24 through a bell crank 58 pivotally mounted on top of the table T having one end thereof extended into the path of movement of and arranged to be engaged by the lever 54, and at the opposite end pivotally connected, as at 59, to one end of a link 60 having the opposite end 61 bent at a right angle and pivotally connected to an extended right angular portion 62 of one of the heating unit supporting arms 47. By the moving of the lever 54 to shift the belt to the pulley 52 the link 60 will assume the position shown in full lines in Figures 3 and 4, by the moving of the heating unit toward the caps on the rails 24 caused by the weight and the eccentric mounting of the heating unit relative to the extended portion 62. By actuating the lever 54 to shift the belt onto the loose pulley 53 the lever 54 will engage and move the bell crank 58 to the position shown in Figure 2, and through the link 60 the heating unit will be actuated away from the caps on the rails 24, as shown in dot and dash lines in Figure 4.

For the positioning and securing of impervious linings to the heated cap pads the caps are intermittently delivered by the reciproca-

tion of the feed rack 27 to punch and die mechanism carried by a slide 63 mounted to have vertical sliding movement in a standard 64 fixed to the top of the table T, and said slide pivotally connected to a crank arm 65 connected with a strap 66 loosely encircling an eccentric 67 (Figure 6) fixed on the drive shaft 22 to impart reciprocatory movement to the slide. The slide is arranged with a laterally extending arm 68 fixedly carrying a punch 69 having an enlargement 70 at the end, as shown in Figures 10 to 15. The punch is extended through a perforation in the slide arm 68 and adjustably secured by a perforated plate 71 fixed in superposed relation to the arm 68 by studs 72 threaded in the arm and secured in aligned perforations in the plate by nuts 73 threaded onto the studs and abutting both surfaces of the plate, the upper end of the punch being threaded and engaged in the perforation of the plate with an annular enlargement 74 on the punch abutting the under surface of the plate and secured to the plate by a nut 75 clamping the plate to the punch enlargement 74. The punch extends below the slide arm 68 in alignment with the space between the cap supporting rails 24 and a support in the form of a post 102 for a cap positioned relative to said support on the rails 24 by the feed rack 27 and co-operating with a die to sever linings from a web W. The web comprises a material which is not only impervious to moisture but also to the deteriorating action of the contents of a receptacle to which the closure cap is applied, usually comprising tin foil, having one face arranged with an adhesive coating, such as rubber, which is non-viscous under normal temperature and is adapted to be rendered viscous by an elevated temperature. The die comprises a tubular member 76 having an enlargement 77 at one end with a transverse recess therein of rectangular shape in cross section and of greater width than the diameter of the bore through the tubular portion 76 to serve as a guide and support for the web, the shoulder formed by said enlargement constituting the cutter edge of the die with which the punch co-operates to sever lining disks from the web, as shown at 78. The die is carried and slidably mounted on the punch so that the punch and die may have movement relative to each other by a sleeve member 76' engaged upon the punch and extending through the perforation in the slide arm 68 through which the punch extends, said tubular member having an enlargement 77' with a transverse recess similar to the die 76 and arranged in opposed relation to said enlarged portion of the die, as shown in Figures 10 to 15. The tubular die portion slidably engages in a perforation of a support and guide 79 for the web W extending transversely of the table and through an opening 80 in the

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slide support 64 and an opening 80' in the slide 63, (Figure 11) and supported upon the bottom wall of the opening 80 and one of the supports 25 for a cap supporting rail 24, said guide and support 79 being arranged above and in contiguous relation to the cap supporting rails 24. The die has a predetermined movement through a perforation 79' in the guide 79 limited by the enlargement 77 of the die engaging the guide 79, to engage the tubular portion 76 with a pad P in a cap C fed along the rails 24 and positioned relative to the support 102 (Figures 13 and 14) to serve as a guide for a lining disk severed from the web by the punch and positioned by the punch to the cap pad on the support 102. The carrier sleeve 76' slidably engages a perforation in an inwardly extending annular flange 82 of a tubular member 81 superposed to the web support 79, said tubular member or housing 81 having oppositely disposed guide openings 81' in line with the guide recesses in the enlarged portions 77, 77' of the die 76 and its carrier 76'. The die is normally urged to position with the tubular portion 76 out of the path of travel of the caps upon the rails 24 by a spring 83 coiled about the sleeve 76' and confined between the flange 82 and nuts 84 threaded onto the sleeve 76'. The web is delivered from a roll R of such web to the punch and die mechanism with the adhesive surface lowermost, and in the operation of punching linings therefrom the punch is actuated to sever a lining disk from the web, the punch assuming substantially the position shown in Figure 12, the lining disk severed from the web being guided through the tubular portion of the die by the punch.

During this operation of the punch the die is retained in its uppermost position by the spring 83, and as the punch assumes the position shown in Figure 12 the slide arm 68 engages with the nuts 84 on the die carrier thereby imparting simultaneous movement to the punch and die and moving the tubular portion of the die 76 into engagement with the pad in the closure cap and the punch positioning the severed lining disk against the heated pin for adhesion thereto, as shown in Figure 13.

To effect adhesion of the severed lining to the sealing pad of the cap by the heat from the pad, pressure is applied to the severed lining before the cap is moved by the feed rack 27 away from the punch and die mechanism. This pressure is applied by a plunger 85 slidably mounted in the punch with the lower end arranged with a head 86 slidable in the enlargement 70 in the punch, the upward movement of the plunger being limited by the shoulder formed at the juncture of said head and plunger abutting the shoulder formed at the enlargement of the punch bore. The head 86 is normally positioned within the

punch head 70, as shown in Figures 10, 12 and 13 by a spring 87 coiled about the plunger and confined between the punch nut 75 and a head 88 fixed to the end of the plunger. During the positioning of the severed lining in the cap by the punch and die, the plunger is actuated to impinge the lining against the cap pad, as shown in Figure 14, by a vertical reciprocatory kicker in the form of a plunger 89 slidably mounted in sleeve portions 90 and 92 extending parallelly from a standard 91 (Figures 10, 12 and 13) mounted on the table T at the side of the cap supporting rails 24. The kicker extends through perforation in the table and has a bifurcated head 98 fixed to the end rotatably carrying a roller 94 between the bifurcation legs to follow a cam 95 fixed to the drive shaft 22 to impart movement to the kicker in an upward direction just prior to the return movement of the slide 63, as shown in Figure 14. The kicker 89 is urged in a downward direction to cause the roller to follow the cam 95 by a spring 96 coiled about the kicker plunger 89 and confined between the sleeve 90 and a collar 97 fastened to the kicker above the sleeve 92. The kicker plunger 89 actuates the plunger 85 to impinge the head 86 of said plunger against the lining, as shown in Figures 14 and 15, through the engagement of a lever 98 pivotally mounted intermediate the ends thereof between the bifurcation legs of a head 99 fixed to the end of a post 100 fixed in and extending upward from the slide 63 and positioned between the punch mechanism and kicker plunger 89, one end of the lever engaging between the bifurcation legs of and pivotally connected to the head 88 of plunger 85, and the opposite end extending over an adjustable abutment 101, in the form of a set screw threaded in the end of the kicker plunger 89, the lever engaging said abutment at the end of the downward movement of the slide 63 of the punch and die engaging the pad in the cap, as shown in Figure 13. In said position the kicker is moved upward by the cam 95 engaging the abutment 101 with and rocking the lever 98 and moving the plunger 85 against the tension of spring 87 and impinging the plunger head 86 under pressure against the lining in a cap, as shown in Figure 14, and maintaining the plunger 85 in such position during the receding movement of the punch and die, as shown in Figure 15, the plunger head 86 also serving to strip the lining from the punch and die. The plunger head 86 recedes to its normal position at the commencement of the advancement of the caps on the rails 24 by the movement of the feed rack 27 in the direction toward the punch and die mechanism by the change of position of the roller 94 relative to the cam 95 effected by the rotation of the cam and the return of the kicker plunger 89 under the influence of

the spring 96 and of the plunger 85 by the force of the spring 87.

The web W of lining material is fed to the punch and die mechanism along the support and guide 79 from a roll R of such web carried on a reel 103 rotatably supported by an arm 104 of a bracket 105 fixed to and extending from the table T. The web is fed from the web roll to the web support and guide 79 of the punch and die mechanism below a roller 106 rotatably supported between parallel side guide flanges 107 of said guide which terminate at the die housing 81 and continues at the opposite side of said housing. The web is delivered from below the roller 106 to the punch and die mechanism through the guide slots 81' of the die housing and enlargements 77, 77' of the die 76 and its carrier 76'.

The web is intermittently fed or drawn across the support and guide 79 relative to the punch and die mechanism by a pair of superposed rollers 108 and 109 fixed to rotatable shafts 110 and 111 and positively driven one from the other by meshing gears 112 and 113 fixed on the end of each of the shafts 110 and 111. The roller 109 is mounted between the legs of a U-shaped standard 114 fixed to and projecting up from the table T with the legs arranged with bifurcations 115 terminating above the mounting of the roller 109 and having ribs 116 extending from the opposed faces for the slidable engagement of grooves or slideways 117 arranged adjacent the marginal edges of a block 118 having a bifurcation 119 at the lower end with the bifurcation legs perforated for the mounting of the shaft of roller 108, the upper end of the block being weighted and flared outwardly to form a hand grip for the manipulating of the block to move the roller 108 out of and into engagement with the roller 109. The weight of the block maintains the gear 112 in mesh with gear 113 and the roller carried thereby in contact with roller 109. The rollers 108, 109 are rotated intermittently and during the period of rest of the punch and die mechanism and simultaneously with the feeding of the caps on the supporting rails 24, by a gear 120 fixed on a shaft 121 rotatable in lateral extensions 122 of the standard 114 and held against movement by a split collar 123 embracing and frictionally engaging the periphery of a disk 123' (Figure 8) with a predetermined force by a screw to draw the collar sections to the disk, and thus preventing overthrow and backlash of the feeding rollers. The collar is anchored on the standard 114 by a pin, as shown in Figures 2 and 8. The gear 120 meshes with the roller gear 113 and is intermittently rotated by the rotation of a ratchet wheel 124 fixed on the shaft 121 and intermittently rotated by a pawl 126 pivotally carried by a rocker, in the form of a plate 125 loosely mounted on the

shaft 121 between the gear 120 and ratchet wheel 124, the pawl 126 being urged into engagement with the ratchet wheel by a spring 127. The rocker plate is rocked or reciprocated by a link 128 pivotally connected to an extension of the plate and to one end of a lever 129 pivotally mounted intermediate the ends thereof in a bifurcated bracket 130 fixed to and extending from the table T. The opposite end of the lever is arranged with an elongated slot 131 for the adjustable engagement of a bolt carried at one end of a rod 132, the opposite end of the rod being connected to a strap 133 loosely embracing an eccentric 134 fixed to the drive shaft 22, whereby reciprocatory movement is imparted to the rod 132 and through the lever and link connection thereof with the rocker plate actuating the rocker and as it is moved in one direction engaging the pawl and ratchet wheel and rotating said wheel and gear 120 a predetermined distance, which distance may be varied by the adjustment of the pin and slot connection 131 between the rod 132 and lever 129, the distance being determined by the length of the web desired to be fed measured by the diameter of the disk.

To prevent the breaking of the web due to the pull thereon by the feeding rollers 108, 109 from the reel 103, tensioning and supplementary feeding means are provided to feed the web from the web reel 103 to the punch and die mechanism, with a slack portion of the web W interposed between the web roll and the punch and die mechanism; said means comprising a flanged roller 135 rotatably mounted on an extension 136 of the bracket 105 extending at substantially a right angle to the reel carrier extension 104, about which roller the web is led from the web roll and guided to a flanged feed roller 137 fixed to one end of a shaft 138 rotatably supported by bracket 105 at the juncture of the extensions 104 and 136, the shaft 138 extending to the opposite side of the bracket 105 through a boss thereon and has a sprocket wheel 139 fixed thereto for operatively connecting and driving the roller 137 from the driving means for the feed rollers 108, 109, to intermittently rotate said roller 137 synchronously with the rollers 108, 109. This connection comprises a sprocket chain 140 engaging the sprocket wheel 139 and a sprocket wheel 141 fixed to a shaft 142 rotatably mounted in a bracket 143 supported on the table T adjacent to the standard 114, and operatively connected with the drive gear 120 by a gear 144 on shaft 142 meshing with a gear 145 rotatably supported by the bracket 143 and meshing with the roller gear 113, as shown in Figures 19 and 20. The web is maintained in contact with the roller 137 by the weight of an idler roller 146 rotatably carried to engage the web between the flanges of roller 137 adjacent one end of a lever 147 pivotally mounted at the opposite end on the

bracket 105 and arranged to yieldingly urge the roller 146 into engagement with the web on roller 137 by a spring 148 coiled about the mounting of the lever with one end fixed to the arm 105 by bending the said end to engage under a flange of said arm and the opposite end of the spring bent laterally and engaged over the upper edge of the lever, as shown in Figure 19. From the roller 137 the web is led to the guide and support 79 under the roller 106 with the slack portion interposed, the roller 106 being arranged relative to the feeding rollers 108, 109 so that the web will extend in a substantially horizontal plane during the severing of a lining therefrom to assure an even severing of the lining.

To prevent the feeding of the web relative to the punch and die mechanism with a consequent waste thereof with no cap positioned on the supporting rails 24 in register with the punch and die mechanism, means are provided to hold the pawl out of engagement with the ratchet wheel upon the actuation of the pawl carrying rocker 125 and thereby prevent the rotation of the gears 120, 113 and 112, said means comprising a lever or bar 149 pivotally mounted intermediate the ends on the standard 114, one end of the lever extending over the cap rails 24 and being weighted, as at 150, to urge said end of the lever in a downward direction, and having a member 151 fixed thereto to extend in superposed relation to the cap engaging space between the rails 24 and having a finger extended into an indent 152 in the edge of the web guide 79 to be engaged by the flange of the caps to lift the weighted lever end 150 thereby rocking the lever to depress the opposite end, which is of curved formation, as at 153 in Figure 6, and engages below a pin 154 extending laterally from the pawl 126, this movement of the lever permitting the pawl to engage the ratchet wheel and actuation thereof by the rocking of the pawl carrying rocker 125 and the actuation of the feed rollers 108, 109 through the gears 120, 113 and 112. When there is no cap on the rails 24 below the finger of member 151 the member 151 will move by the weight of the end 150 downward between the rails 24, it being limited in this movement by an adjustable abutment in the form of a set screw 155 threaded into a vertical perforation in the end 150 to abut one of the guide edges 44, and this downward movement of the lever end 150 will move lever end 153 upward and through the engagement of said end with the pawl pin 154 move the pawl 126 out of engagement with the ratchet wheel 124, thereby stopping the rotation of the rollers 108, 109 through the breaking of the connection between the pawl carrying rocker 125 and gear 120.

To prevent the accumulation of the adhesive of the web on roller 109, which may be

rendered somewhat viscous on the remaining portion of the web from which linings have been severed due to heat created by the operation of the punch and die mechanism, a scrapper in the form of a curved plate 156 is carried by angle brackets fixed to the standard extensions 122, one edge of said plate being arranged in scraping relation to the roller 109 and the other end extending to a lower plane for the disposal of the accumulation of the adhesive thereon by gravity.

To facilitate the threading of the web to the web feeding means a hand knob 110' is fixed to the extended end of the roller carrying shaft 110, and whereby web feeding movement may be imparted to the feed rollers 108, 109.

To assure an intimate adhesion of the severed linings positioned on the pads P the caps are advanced from the punch and die mechanism by the reciprocation of the feed rack 27 to means to successively subject the linings assembled on the pads in caps to heat and pressure. This means comprises a pair of heated plungers slidably mounted in the arm 68 of the slide 63 in parallel relation to the punch and die and moved by the movement of the slide into and out of engagement with caps on the supporting rails 24 positioned in alinement with said plungers. Each of the plungers comprises a tubular shank 157 slidably mounted in a bore in the slide arm 68, the end of the shank extending above the member 68 having an annular enlargement 158 to abut the member 68 to limit the downward movement of the shank. The lower end of the shank carries a head in the form of a plug 159 of heat conducting material and of a diameter equal to the diameter of the lining, said head being threaded into the bore of the shank and carrying an electric heating unit to heat the same, comprising a carrier 160 of electric insulating and heat conducting material having embedded therein an electric resistance wire 161 connected to a source of electricity by conductors 162 supported by a terminal plug 163 of insulating material inserted in the bore of the shank at the upper end with an annular enlargement thereof abutting the end of the shank and enclosed in a cap member 164 threaded onto the end of the shank extending beyond the enlargement 158, the cap having an opening there-through for the passage of the conductors leading from a recess 165 to accommodate the plug 163 and the electrical connections of the conductors therewith. The head 159 is maintained with a yielding pressure against a lining positioned in a cap during the downward movement of the slide 63 by a spring 167 coiled about the shank and confined between a collar 166 fixed on the lower end of the shank and the slide arm 68, the collar 166 also limiting the movement of the head 159 toward the cap on the rails 24 by engaging

with the rails 44 to retain the caps on the supporting rails 24. By this arrangement sufficient force is applied to the lining without forcing the cap through the bevelled edges 26 of the rails 24 and assure an intimate adhesion of the linings to the pads. Both of the plungers are of similar structure and operate simultaneously upon different caps during the period of rest of the caps on the rails 24.

To maintain an intimate adhesion of the linings to the pads the caps are advanced from the heating plungers to means to place them under pressure as they cool. This means comprises a disk 168 fixed on a shaft 169 rotatably supported at one end in a bearing sleeve 170 fixed to the table T and in a hub portion of a bracket 171 mounted on the table T to extend upward and overhang the disk 168. The shaft 169 is rotated through a gear 172 fixed to the shaft and meshing with a pinion 173 fixed to one end of a shaft 173' rotatably supported in a bearing sleeve 174 fixed to and extending below the table T, a bevel gear 175 on the lower end of the shaft meshing with a bevel pinion 176 fixed to the drive shaft 22. The upper surface of the table is in a plane with the cap supporting rails 24, and the caps are delivered from said rails to the table by the feed rack 27. To place the linings assembled on pads on the table under pressure to maintain an intimate adhesion of the linings when the caps are cooled a series of plungers 177 are circumferentially spaced around the table, said plungers being slidably carried by a pair of superposed ring members 178, 179 fixed in spaced relation on the shaft 169 superposed to the table 168. The plungers are urged into engagement with the table by springs 182 coiled about the plungers with one end fixed to the plungers and the opposite end abutting against the upper ring member 178. The ratio of the gearing 172 to 176 is such so as to rotate the table a distance equal to the spacing of the plungers 177 upon each cap feeding movement of the feed rack 27 and thus deliver caps from the supporting rails 24 to the successive plungers 177.

To release the plungers from the caps on the table and permit the positioning of caps on the table 168 in interposed relation to the plungers, each plunger carries a roller on a stud fixed in the plunger above the ring member 178 to extend laterally of the periphery of said ring member 178, as shown at 181, which rollers ride up an arcuate cam member 180 supported upon the table T by the rotation of the plungers with the table 168, thus moving the plungers successively away from the table against the tension of the springs 182 and maintaining them in such position until they pass the delivery end of the rails 24 and a cap has been delivered to the table and positioned relative to a plunger when the

plunger rollers ride off from the cam member and the plunger engages a cap on the table positioned relative thereto. As the plunger rollers 181 ride up the cam 180 and the plungers are moved out of engagement with caps on the table such caps by the rotation of the table engage an abutment (not shown) intersecting the path of travel of the caps and arranged to direct the caps from the table to a chute 183.

It will be obvious that various modifications may be made in the construction and arrangement of parts without departing from the scope of the invention, and that portions of the invention may be used without others and come within the scope of the invention.

Having thus described my invention, I claim:

1. In apparatus for assembling and securing impervious linings to pads in closure caps, punch and die mechanism having a diameter less than the pads, means to intermittently feed and position caps to the punch and die mechanism and pass the caps through a zone having an elevated temperature, means to feed a web of impervious material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into lining disks of less diameter than the pads and positioned by the punch in the heated caps with the adhesive surface opposed to the pads to effect a fusion of the adhesive and uniting the linings to the pads, and means to guide and position the linings centrally of the cap pads.

2. In apparatus for assembling and securing impervious linings to pads in closure caps, punch and die mechanism, a cap support, means to intermittently feed and position caps on the support relative to the punch and die mechanism and to pass the caps through a zone having an elevated temperature, means to feed a web of impervious material having an adhesive surface normally non-viscous from a roll of such web to the punch and die mechanism to be severed into linings and positioned by the punch and die mechanism in the caps to effect an adhesion between the linings and the pads, and said feeding means normally inoperative to feed the web and adapted to be rendered operative by a cap on the support to be positioned relative to the punch and die mechanism upon the successive actuation of the cap feeding means.

3. In apparatus for assembling and securing impervious linings in closure caps, punch and die mechanism, means to intermittently feed and position caps relative to the punch and die mechanism and pass the caps through a zone having an elevated temperature to heat the same as they are fed to the punch and die mechanism, means to feed a web of impervious material having an adhesive surface normally non-viscous to the punch and

die mechanism to be severed into linings and positioned by the punch and die mechanism in the caps and the adhesive surface thereof rendered viscous by the heated cap, and means to which the caps with the impervious linings assembled therein are delivered from the punch and die mechanism to place the linings under heat and pressure to effect intimate adhesion between the linings and the caps.

4. Apparatus for assembling and securing impervious linings in closure caps as claimed in claim 3, wherein the die is arranged to guide and the punch to position the linings severed from the web centrally of the caps.

5. In apparatus for assembling and securing impervious linings in closure caps, reciprocatory punch and die mechanism, means to intermittently feed and position caps to the punch and die mechanism, means to feed a web of the lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned by the punch and die mechanism in the caps, means to which the caps with the linings are delivered from the punch and die mechanism to place the linings under heat and pressure to effect an intimate adhesion of the linings in the caps, and means to which the caps are delivered from said latter means to place the same under pressure to maintain adhesion between the linings and caps during the cooling period.

6. In apparatus for assembling and securing linings in closure caps, reciprocatory punch and die mechanism, means to intermittently feed and position caps to the punch and die mechanism and pass the caps through a zone having an elevated temperature to heat the same, means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings, the lining severed from the web being positioned by the punch in a cap, and the die being arranged to engage in the cap and guide the lining as it is positioned by the punch in the cap, means to which the caps with the linings are delivered from the punch and die mechanism to place the linings in the caps under heat and pressure to effect an intimate adhesion thereof, and means to which the caps are delivered from said latter means to place the same under pressure during the cooling to effect and maintain adhesion between the linings and the caps.

7. In apparatus for assembling and securing linings in closure caps, punch and die mechanism, means to intermittently feed and position the caps to the punch and die mechanism, heating means to produce a zone having an elevated temperature to heat the caps as they are fed to the punch and die mechanism, said heating means being adjustably

supported superposed to the path of travel of the caps, means to feed a web of lining material having an adhesive surface to the punch and die mechanism to be severed into linings and positioned by the punch and die mechanism in the caps to effect an adhesion of the linings to the caps, and means to render the apparatus operative and inoperative and adapted when actuated to render the apparatus operative to position the heating means superposed to the travel of the caps and move the heating means to a position remote to the travel of the caps when said means is actuated to render the apparatus inoperative.

8. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, a support for a series of caps below and intersecting the axis of the punch and die mechanism, means to intermittently feed and position caps on said support relative to the punch and die mechanism and pass the caps through a zone having an elevated temperature as they are fed to the punch and die mechanism to heat the pads, means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned in the caps centrally of the pads by the punch and die mechanism, and means operative synchronously with the actuation of the punch and die mechanism to which the caps with linings are delivered from the punch and die mechanism to place the linings under heat and pressure to render the same viscous and effect an adhesion between the linings and the pads.

9. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, a support for a series of caps arranged below and intersecting the axis of the punch and die mechanism, means to intermittently feed and position caps on said supporting means relative to the punch and die mechanism and pass the caps as they are fed to the punch and die mechanism through a zone having an elevated temperature to heat the pads, means intermittently operative to successively deliver the caps relative to said feeding and positioning means, and means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned in the caps centrally of the pads by the punch and die mechanism to effect an infusion of the adhesive and adhesion between the linings and the pads.

10. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, a support for a series of caps, means to intermittently feed and position caps on said support relative to the punch and die mechanism and pass the caps as they are fed to the punch and die mechanism through a zone having an elevated temperature to heat the pads, means operative in sequence with

the actuation of the cap feeding and positioning means to deliver the caps to the support relative to said feeding and positioning means, and means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned in the caps centrally of the pads by the punch and die mechanism to effect an infusion of the adhesive and adhesion between the linings and the pads.

11. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, means to support caps in alignment with the punch and die mechanism, means to intermittently feed and position caps on said supporting means to the punch and die mechanism, means to supply the caps to the supporting means relative to said feeding and positioning means, an electric heating unit intermediate the punch and die mechanism and the cap supplying means and superposed to the travel of the caps for producing an elevated temperature to heat the pads in the caps, and means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned in the caps centrally of the pads by the punch and die mechanism to effect an adhesion between the linings and the pads.

12. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, means to support caps in alignment with the punch and die mechanism, means to intermittently feed and position caps on said supporting means to the punch and die mechanism and pass the caps through a zone having an elevated temperature to heat the pads, means to supply caps to the supporting means relative to said feeding and positioning means comprising a rotatable disk to support and align caps thereon with the supporting means and a finger reciprocated by the actuation of the cap feeding and positioning means to deliver caps from the disk to the supporting means relative to the feeding and positioning means, and means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned in the caps relative to the pads by the punch and die mechanism to effect an adhesion between the linings and the pads.

13. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, a support for a series of caps intersecting the axis of the punch and die mechanism, means to intermittently feed and position caps on said support to the punch and die mechanism, an adjustable electric heating unit to be positioned to extend in superposed relation to the pads in the travel of the caps on the support as they are fed to the punch

and die mechanism to heat the pads and be adjusted to a position remote to the caps on the support, and means to feed a web of lining material having an adhesive surface normally non-viscous from a roll of such material to the punch and die mechanism to be severed into linings and positioned in the caps centrally of the heated pads by the punch and die mechanism to effect an adhesion between the linings and the pads.

14. In apparatus for assembling linings in closure caps, punch and die mechanism, means to support a cap relative to the punch and die mechanism, means to feed a web of lining material to the punch and die mechanism to be severed into linings and positioned centrally in the caps by the punch and die mechanism, a support and guide for the web interposed between the punch and die mechanism and cap supporting means to one end of which the web is delivered from a web roll with a slack portion between the web roll and support and guide, and intermittently operative means arranged at the opposite end of said support and guide to draw the web across the support and guide relative to the punch and die mechanism in the inoperative position thereof.

15. In apparatus for assembling linings in closure caps, punch and die mechanism, means to support a cap relative to the punch and die mechanism, means to feed a web of lining material from a roll of such web to the punch and die mechanism to be severed into linings and the linings positioned in the caps by the punch and die mechanism comprising a support and guide for the web to the punch and die mechanism, intermittently operative means arranged at one end of the support and guide to draw the web across the same, and intermittently operative means to deliver the web from the web roll to the opposite end of the support and guide with a slack portion of the web interposed between said latter means and the support and guide, the web drawing and delivering means being actuated in synchronism with each other.

16. Apparatus for assembling linings in closure caps as claimed in claim 15, wherein the intermittently operative means to draw the web across the support and guide comprises a pair of rollers between which the web is engaged, a ratchet wheel operatively connected with said rollers, a rocker pivotally supported on the axis of the ratchet wheel, a pawl pivotally carried by said rocker to engage the ratchet wheel, and means to oscillate the rocker.

17. Apparatus for assembling linings in closure caps as claimed in claim 15, wherein the means to deliver the web from the web roll to the support and guide comprises an intermittently rotated roller, and rollers to guide the web from the web roll to and main-

tain it in contact with said intermittently rotated roller.

18. In apparatus for assembling linings in closure caps, punch and die mechanism, means to support a cap relative to the punch and die mechanism, means to feed a web of lining material from a roll of such web to the punch and die mechanism to be severed into linings and the linings positioned in the caps by the punch and die mechanism comprising a support and guide for the web to the punch and die mechanism, a pair of rollers arranged at one end of the support and guide between which the web is engaged and operative to draw the web across the support and guide, a ratchet wheel operatively connected with said rollers, a rocker carrying a pawl to cooperate with the ratchet wheel to effect intermittent rotation thereof and intermittent feeding movements of the rollers, a roller arranged at the opposite end of the support and guide to deliver the web from the web roll, said roller being operatively connected with and intermittently rotated from the ratchet wheel, and rollers to guide the web from the web roll and maintain the web in contact with the latter feed roller.

19. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, a cap support, means to feed and position caps on the support relative to the punch and die mechanism, means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned in the caps centrally of and with the adhesive surface abutting the pads by the punch and die mechanism, and electrically heated plungers to which the caps are successively delivered from the punch and die mechanism to place the linings under heat and pressure and effect an intimate adhesion between the linings and the pads.

20. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, a cap support, means to feed and position caps on the support relative to the punch and die mechanism, means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into linings and positioned in the caps centrally of and with the adhesive surface abutting the pads by the punch and die mechanism, electrically heated plungers to which the caps are successively delivered from the punch and die mechanism to place the linings under heat and pressure and effect an intimate adhesion between the linings and the pads, and means to which the caps with the linings are delivered from the heated plungers to place the pads and linings under pressure during the cooling thereof.

21. In apparatus for assembling linings in closure caps, a cap support, punch and die

mechanism superposed to the cap support to sever linings from a web of lining material having an adhesive surface and position the severed linings in a cap on the cap support comprising a reciprocatory punch and a tubular die slidable on and reciprocatory with the punch and one movable relative to the other, said die being arranged to engage within the cap on the support and guide a severed lining as it is positioned by the punch in the cap.

22. In apparatus for assembling linings in closure caps as claimed in claim 21, means to engage and hold the lining to the cap and strip the lining from the punch and die as they recede from the cap.

23. In apparatus for assembling linings in closure caps as claimed in claim 21, wherein the punch is tubular, a plunger slidable in the punch operative to engage and hold the lining to the cap and strip the lining from the punch and die as they recede from the cap.

24. In apparatus for assembling linings in closure caps, a cap support, means to sever a lining from a web and position the same in a cap on the support comprising a die arranged with a support for the web from which the linings are severed, said die being slidably supported in superposed relation to the cap support and having a tubular portion opposed to the cap support to engage within the cap, said die being normally urged in a direction from the cap support, a punch slidable in the die to sever the lining from the web, and means to actuate said punch and die to engage the tubular portion of the die within the cap, sever the lining from the web by the punch and guide the severed lining through the tubular portion of the die to position in the cap.

25. In apparatus for assembling linings in closure caps as claimed in claim 24, means operative in sequence with the operation of the punch and die to engage the lining in the cap and strip the lining from the punch and die as they recede from the cap.

26. In apparatus for assembling linings in closure caps as claimed in claim 24, a plunger slidably mounted in the punch and normally urged to predetermined position within the punch, and means to actuate and engage said plunger with the lining positioned in the cap by the punch to hold the lining in the cap and strip the same from the punch and die as they recede from the cap.

27. In apparatus for assembling and securing linings to sealing pads in closure caps, punch and die mechanism, a cap support, means to intermittently feed and position caps on the support relative to the punch and die mechanism, means to heat the cap pads as they are fed to the punch and die mechanism, means to feed a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism for

the severing of linings from the web and positioning of the linings relative to the heated pads in the caps by the punch and die mechanism; and means carried by the punch to forcibly impinge the lining against the heated cap pad and effect adhesion of the lining to the cap pad, said means being actuated in sequence to the positioning of the severed lining relative to the cap pad by the punch and die mechanism.

28. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, and severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads.

29. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, and then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads.

30. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing the linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads, and then placing the linings assembled in the caps under pressure during the cooling thereof.

Signed at borough of Brooklyn, in the county of Kings and State of New York, this 18th day of November, A. D. 1929.

JOHN A. JOHNSON.

[fols. 767-769] PLAINTIFF'S EXHIBIT No. 15

Aug. 8, 1933.

B. COHN

1,921,808

METHOD OF MAKING CLOSURES

Filed July 20, 1932

Fig. 1.



Fig. 2.



Fig. 3.

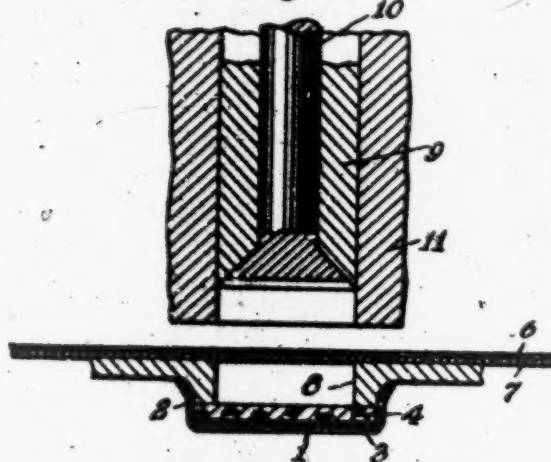


Fig. 4.

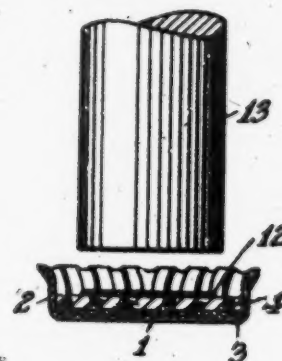


Fig. 5.

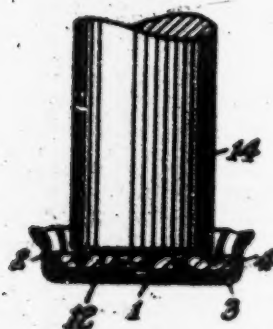
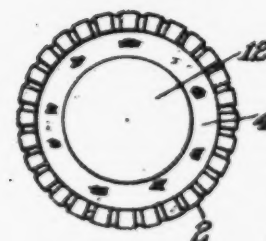


Fig. 6.



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UNITED STATES PATENT OFFICE

1,921,808

METHOD OF MAKING CLOSURES

Benno Cohn, Brooklyn, N. Y., assignor to Ferdinand Gutmann & Co., Brooklyn, N. Y., a Corporation of New York

Application July 20, 1932. Serial No. 623,476

3 Claims. (Cl. 113-80)

My invention relates to an improved method of manufacturing container closures having a "spot" or disk of metal foil or other suitable material centrally located on the exposed face of the sealing gasket within the closure and it is my object to practice an economical method by which such "spots" are cut cold from the ribbon or strip from which they are punched and are firmly united to the gasket.

The "spots" or disks of metal or other material, are, in practice punched or cut from a strip or ribbon which is faced on one side with a suitable adhesive, such as gutta-percha, which is hard enough to handle conveniently at ordinary temperatures but which becomes tacky when heated. Heretofore a completed cap has been fed beneath a heated cutting die which has punched out the "spot" or disk and forced it against the gasket, the heat of the die softening the adhesive and causing the "spot" and gasket to stick together. The use of a hot die melted the adhesive and gummed the cutting die causing it to stick and even break when the accumulation of adhesive became too great. Moreover one operation was required to assemble the gasket in the shell and a subsequent operation was required to apply the "spot" to the gasket.

By my method the strip or ribbon of foil or other material is cut or punched by a cold die and pressed against a heated gasket so that there is no danger of the cutting die accumulating adhesive which would render it inoperative. Furthermore the assembly of shell, gasket and "spot" is accomplished in one operation. This is more economical and better, and avoids marring the appearance of the cap by excessive handling and heating. My new method has further advantages which will be set forth herein.

In the drawing I have shown my invention in diagrammatic, exaggerated form as the machines used in carrying it out are well known in the art. Fig. 1 is a sectional view of a cap with the adhesive and sealing gasket therein; Fig. 2 a sectional view of the cap of Fig. 1 passing under the heating flame; Fig. 3 a sectional view showing the cutting out and insertion of the "spot"; Fig. 4 a sectional view showing the operation of the smoothing plunger; Fig. 5 a sectional view of the cap under the plunger on the cooling ring of an assembling machine; and Fig. 6 a view of the inside of a finished cap.

For the purpose of illustrating my invention I have shown it applied to a crown cap but the method may be applied to any other type of closure.

The crown cap consists of a metal shell having a top 1 and a depending, corrugated skirt 2. An adhesive 3 is introduced into the shell, generally in the form of a disk of paper saturated with gums, which becomes adhesive under the action of heat. A sealing gasket 4, of cork or other material, is then placed in the shell on top of the adhesive. Heretofore, in making "spot" closures the assembled closure so far described has been subjected to heat and pressure to stick the gasket to the shell and the "spot" has been applied by a subsequent operation.

By my method the shell, adhesive and gasket are assembled but not firmly stuck together as they are in the completed crown under the old method referred to above. Depending on the adhesive used, the shell, with or without adhesive or gasket therein, may or may not be heated. The closure is then passed, gasket side up, under a flame 5 which heats the gasket. A series of heated plungers may be substituted for the flame. The closure next passes under a strip or ribbon of foil 6 (or any other suitable material) coated on its lower face with an adhesive 7. This strip or ribbon runs over a female die 8 having an opening the size and shape of the "spot" to be applied to the gasket, and an annular, depending flange adapted to enter the shell and center it. A cutting punch 9, with a knock-out plunger 10, is mounted in a sleeve 11 and is reciprocated over the female die 8 and on the down stroke the cutting punch 9 punches out a "spot" 12, which "spot" is pushed against the heated gasket 4 by the knock-out plunger 10. The cutting punch 9 and knock-out plunger 10 are cold so that the adhesive on the strip or ribbon will not be softened and adhere thereto. As the knock-out plunger 10 is necessarily smaller than the "spot" 12 the edges of the latter will not be firmly pressed against the gasket 4, but the "spot", as a whole, will be firmly enough united to the gasket 4 as not to be jarred out of position. Before the adhesive has cooled the closure, with the spot adhering to the gasket 4, is next passed under a smoothing plunger 13, which may be heated when desirable and which covers the entire gasket and presses the entire surface of the "spot" into contact with the gasket.

The closure finally passes under a plunger 14 on the cooling ring of the assembling machine where pressure is maintained on the completed closure until the adhesive 3 and the adhesive 7 have set.

In this way a single assembling machine may be used to assemble the various parts of a "spot"

closure instead of completely assembling the closure in one machine and then refeeding it through another machine which applies the "spot".

I claim:

5 1. The herein described method of making closures comprising the following steps in continuing succession: the application of a cementing medium to a metal shell, the deposit within the shell upon said medium of a sealing gasket, the application of heat to said gasket, the placing
10 on the exposed heated face of the gasket of a facing disk having a fusible adhesive on one face thereof, and clamping said gasket against said shell and the interposed cementing medium, and said disk against said gasket and the interposed adhesive by a continuing pressure until said
15 cementing medium and said adhesive have set, whereby a closure including a sealing gasket having a center spot may be produced by a single continuing procedure.

20 2. The herein described method of making closures comprising the following steps in continuing succession: the application of a fusible cementing medium to a metal shell, the deposit within the shell upon said medium of a sealing gasket, the application of heat to said gasket, the placing
25 on the exposed heated face of the gasket of a facing disk having a fusible adhesive on one face thereof, the temporary application of heat

throughout substantially the entire area of said disk, and clamping said gasket against said shell and the interposed cementing medium, and said disk against said gasket and the interposed adhesive by a continuing cold pressure until said cementing medium and said adhesive have set, whereby a closure including a sealing gasket having a center spot may be produced by a single continuing procedure.

3. The herein described method of making closures comprising the following steps in continuing succession: the application of a fusible cementing medium to a metal shell, the deposit within the shell upon said medium of a sealing gasket, the application of heat to said gasket, the placing on the exposed heated face of the gasket of a facing disk having a fusible adhesive on one face thereof, the temporary application of heat and pressure throughout substantially the entire area of said disk, and clamping said gasket against said shell and the interposed cementing medium, and said disk against said gasket and the interposed adhesive by a continuing cold pressure until said cementing medium and said adhesive have set, whereby a closure including a sealing gasket having a center spot may be produced by a single continuing procedure.

BENNO COHN.

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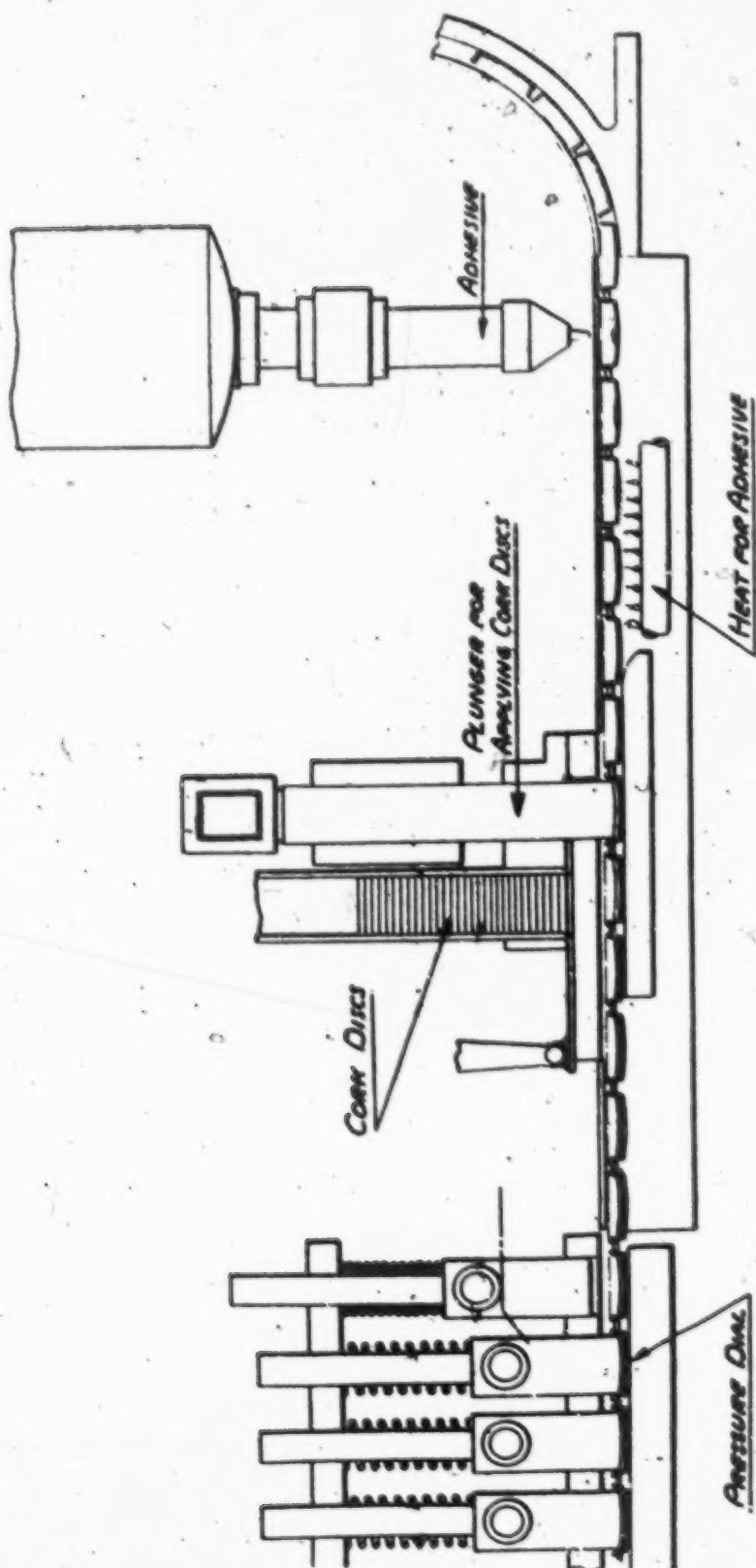
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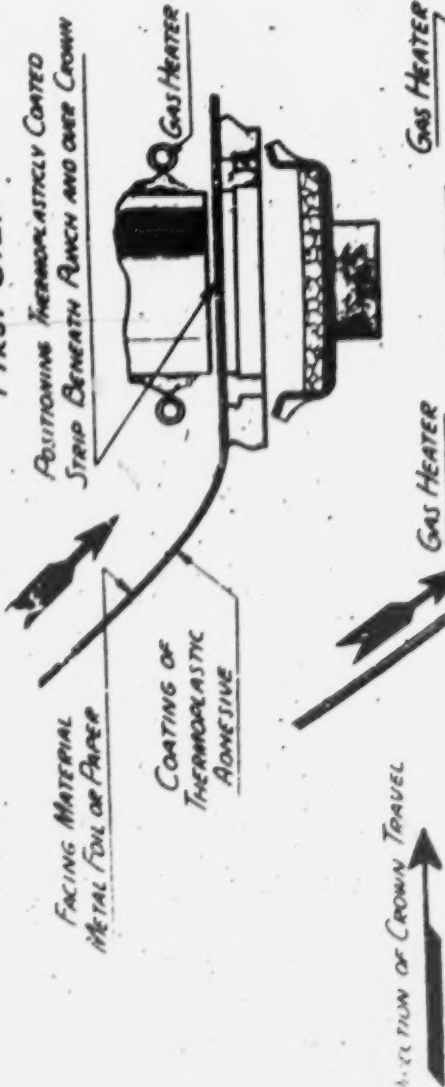
<p>STANDARD NEW-SPOT CROWN No. 1,000,000 - May 4, 1920 No. 1,000,000 - May 4, 1920</p> <p>Metal Shell Adhesive Center Spot Corn Disc</p>	<p>MC. MANUS CENTER-SPOT CROWN No. 1,000,000 - May 4, 1920 No. 1,000,000 - May 4, 1920</p> <p>Adhesive Center Spot Corn Disc</p>
<p>AMERICAN CORN AND SEAL CROWN No. 1,000,000 - May 4, 1920 No. 1,000,000 - May 4, 1920</p> <p>Metal Shell Adhesive Center Spot Corn Disc</p>	<p>WARTH PAPER CENTER-SPOT CROWN No. 1,000,000 - May 4, 1920 No. 1,000,000 - May 4, 1920</p> <p>Adhesive Center Spot Corn Disc</p>
<p>STEMMET or WHITE ROCK CROWN No. 1,000,000 - May 4, 1920 No. 1,000,000 - May 4, 1920</p> <p>Adhesive Center Spot Corn Disc</p>	<p>WARTH PAPER CENTER-SPOT CROWN No. 1,000,000 - May 4, 1920 No. 1,000,000 - May 4, 1920</p> <p>Adhesive Center Spot Corn Disc</p>

PLAINTIFF'S EXHIBIT NO. 21

EXH 21

U. S. District Court
Eastern District of New York
Crown Cork & Seal Co., Inc.
Plaintiff
vs.
Industrial Steamers & Co.,
Defendant
p. 7311

FIRST STEP

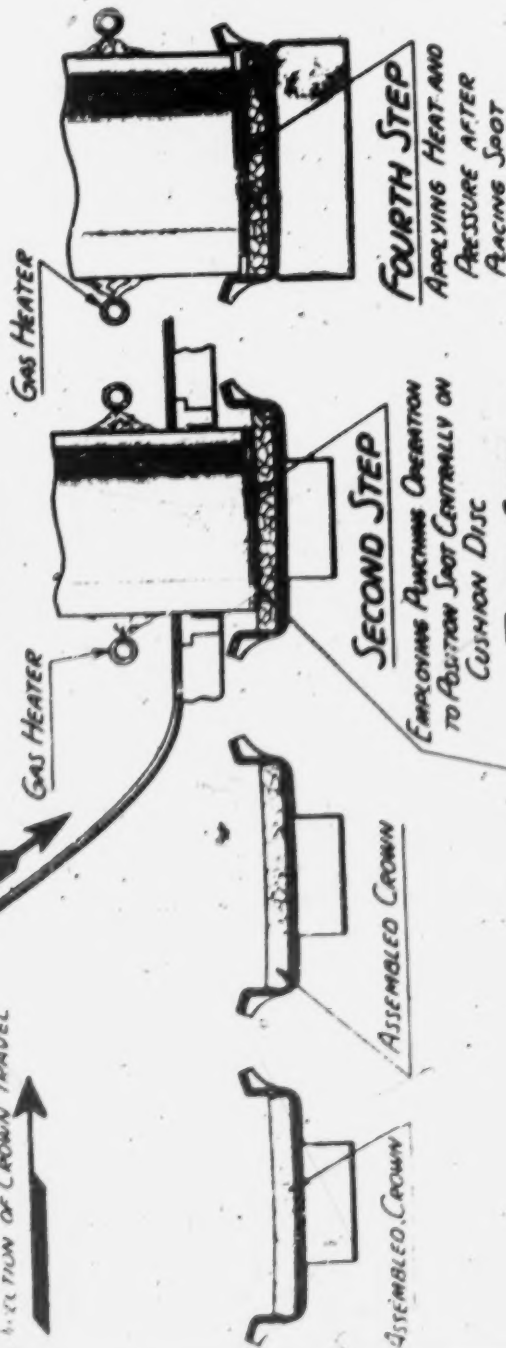


SECOND STEP

EMPLOYING PUNCHING OPERATION
TO POSITION SPOT CENTRALLY ON
CUSHION DISC

THIRD STEP

ACHIEVING SPOT TO DISC BY
HEAT AND PRESSURE

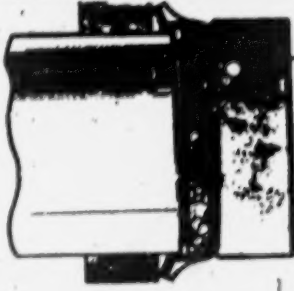


FOURTH STEP

APPLYING HEAT AND
PRESSURE AFTER
PLACING SPOT

FIFTH STEP

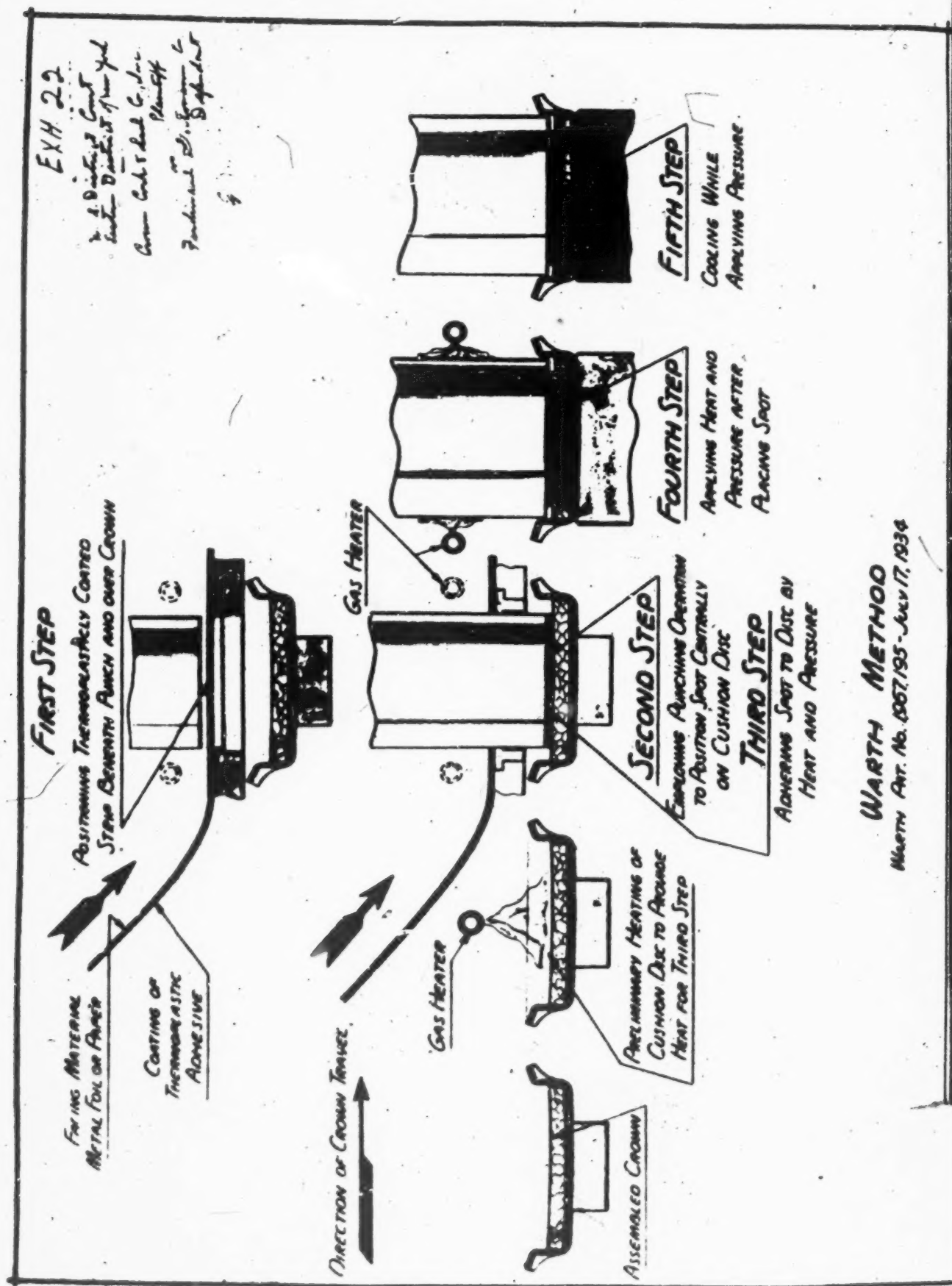
COOLING WHILE
APPLYING PRESSURE



WARTH METHOD

WARTH PATENT No. 1917 - MARCH 20, 1934
Crown Filed January 7, 1927

PLAINTIFF'S EXHIBIT No. 22

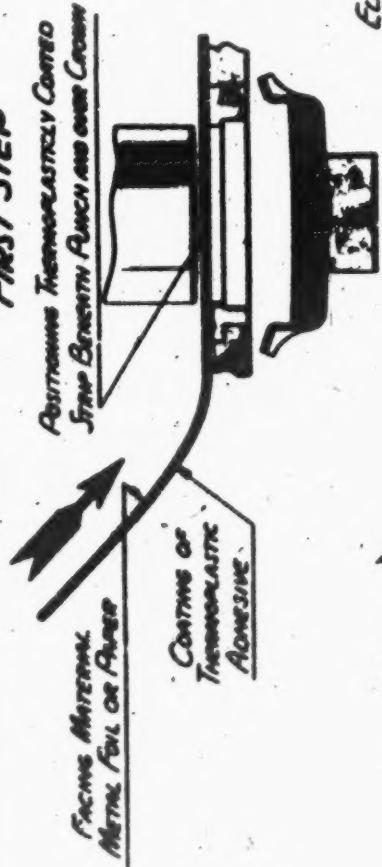


PLAINTIFF'S EXHIBIT No. 23

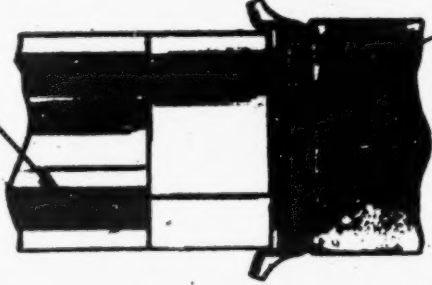
EXH. 23

U. S. District Court
Southern District of New York
James C. L. & Co., Inc.
vs. Plaintiff
Patented & Registered
Copyright
By No. 79718

FIRST STEP

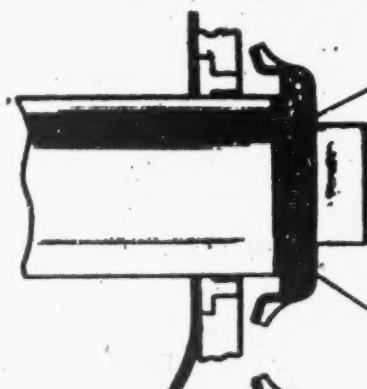


ELECTRIC HEATER



FOURTH STEP

APPLYING HEAT AND PRESSURE AFTER PLACING SPOT

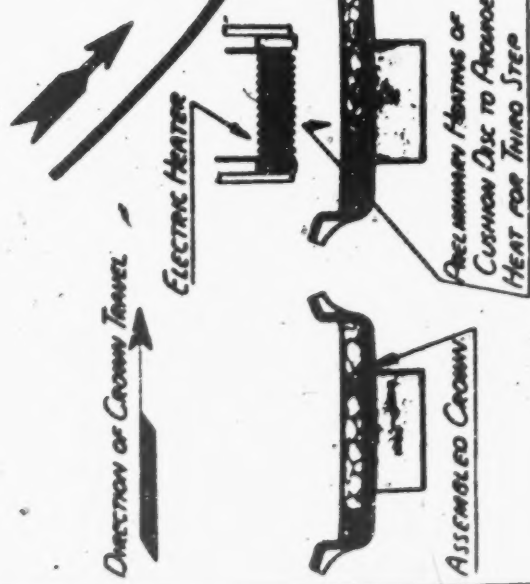


SECOND STEP

EMPLOYING PUNCHING OPERATION TO POSITION SPOT CENTRALLY ON CUSHION DISC

THIRD STEP

ADHERING SPOT TO DISC BY HEAT AND PRESSURE



PRELIMINARY HEATING OF CUSHION DISC TO PROVIDE HEAT FOR THIRD STEP

ASSEMBLED CUSHION

DEFENDANTS METHOD

Johnson Pat. No. 1,858,578 - April 5, 1932
Cohn Pat. No. 1,921,808 - August 8, 1933

L. N. P.